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The January (Chicago) number of the *Medical Clinics of North America* is of great and timely importance to the general practitioner for whom it was especially planned. It includes not one, *but Two Symposia* which answer an urgent need in current medical practice. One is on *Cardiovascular Diseases,* the other on *Diseases of the Blood and Blood-forming Organs.*

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FALCIPARUM MALARIA

THE IMPORTANCE OF EARLY DIAGNOSIS AND ADEQUATE TREATMENT

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AND
HENRY E. MELENEY, M.D.
NEW YORK

Prior to and since the entry of the United States into the present war, a large number of American civilians have been employed in construction and other occupations in tropical areas where falciparum malaria is endemic or hyperendemic. Already a number of these persons have returned to this country. Some give a history of having had recognized malaria abroad, some have apparently had it in an unrecognized form, and others have become infected en route to America and have come down with acute attacks shortly after their arrival.

Unless one is familiar with the extremely varied clinical picture which falciparum infection may assume and the possibility of the development of alarming symptoms requiring early and intensive therapy, the infection may remain unrecognized and may even terminate fatally. In fact, this tragic circumstance has already occurred among the group dealt with in this report. A striking example of the confusion, difficulties and fatalities which may occur in an area where this disease is not common was seen when physicians in New York City and elsewhere were confronted with the problem of falciparum malaria in drug addicts.[1]

Our object in the present report is to review the clinical aspects of falciparum malaria and to emphasize the necessity of keeping this disease in mind when seeing patients with a history of travel or residence in the tropics. Illustrative cases presenting some of the problems in diagnosis are briefly presented, and effective treatment of falciparum infections is outlined.

GENERAL CONSIDERATIONS

The biologic characteristics of Plasmodium falciparum are sufficiently different from the other human malarial parasites to be reflected in the peculiar, often bizarre, clinical features and pathology of falciparum malaria. The fundamental differences have been summarized by Kitchen [2] as follows:

(*a*) "Internal sporulation." Unlike Plasmodium vivax and Plasmodium malariae, which undergo development and schizogony in the circulating blood, Plasmodium falciparum completes the latter part of its asexual cycle in the capillaries. The rings grow in the circulating blood for a period of from twelve to twenty-four hours and then disappear into the capillaries, where the parasitized red cells adhere to the endothelial lining of the smaller vessels. Infected red cells also adhere to one another. This frequently results in complete obstruction to numerous capillaries. Predominant localization of such a process in an organ requiring continuous circulation, such as the brain, intestine and heart, readily explains the pathology and clinical disease which one sees in falciparum malaria.

(*b*) "Marked invasiveness." The potentialities of the parasite density in falciparum infection are limited only by the number of red blood cells. The rapid increase in the number of parasites frequently results in counts as high as two million parasites per cubic millimeter, particularly in fatal cases. This adds to the malignant or pernicious nature of this infection.

(*c*) "Asynchronicity." The unpredictable and frequently irregular temperature curve which is seen in falciparum infections is probably due to the fact that this parasite is less uniform than the other two human species in the time of completion of its asexual cycle.

CLINICAL ASPECTS

Numerous attempts have been made to classify the various clinical manifestations of falciparum malaria on the basis of the predominant organ or system involved. Such a classification may be useful but can be misleading if one fails to recognize the possibility that the infection may involve several systems with equal severity at the same time.

Predominant Cerebral Involvement.—Stupor and coma are the commonest evidence of nervous system involvement. Convulsions may occur and in some cases have been erroneously ascribed to alcoholic poisoning or head injury. Other neurologic signs, although present in some fatal cases, are not of particular diagnostic aid. Stiffness of the neck, hyperreflexia and pathologic pyramidal tract reflex signs are the most common of these findings. Occasionally intermittent rigidity or sucking and grasping reflexes are seen. Rectal and vesical incontinence are quite common. On the whole, the signs are suggestive of an acute meningitis or encephalitic process.

Mental symptoms are occasionally the outstanding feature of onset and may result in the admission of the patient to a psychiatric institution. The usual finding is confusion, which may be accompanied by restlessness or negativism. Mental symptoms demand immediate intensive parenteral treatment. Such patients must be watched very closely, since they may become manic or commit suicide.

CASE 1.—L. A., a man aged 52, a welder, returned from East Africa to the United States by airplane on Aug. 29, 1943. En route he stopped for a week at Accra, Gold Coast. On arriving in Miami he experienced a chill but continued

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1. Most, Harry: Falciparum Malaria Among Drug Addicts: Epidemiologic Studies, Am. J. Pub. Health **30**: 403 (April) 1940; Falciparum Malaria in Drug Addicts: Clinical Aspects, Am. J. Trop. Med. **20**: 551 (July) 1940; Malignant Malaria Among Drug Addicts: Epidemiological, Clinical and Laboratory Studies, Tr. Roy. Soc. Trop. Med. & Hyg. **34**: 139 (Aug.) 1940.

2. Kitchen, S. F.: The Infection in the Intermediate Host: Symptomatology, Falciparum Malaria, in a Symposium on Human Malaria, Publication 15. American Association for Advancement of Science, 1941.

his trip to New York. Two days after his arrival at home he consulted a physician because of upper respiratory symptoms. Coryza was the only physical finding. The temperature was normal, and symptomatic treatment was prescribed. The following day he had a severe chill and could not recognize his wife. He was admitted to the hospital in a deep stupor and could not be aroused even by painful stimuli. His neck was slightly rigid and there was bilateral ankle clonus. There was rectal and urinary incontinence. The temperature was 104 F. Examination of a thin blood film revealed 2,100,000 falciparum parasites per cubic millimeter. Numerous schizonts were found, and many of the monocytes and polymorphonuclear neutrophils contained malarial pigment. The patient received several small doses of quinine sulfate by stomach tube; also a saline infusion and a transfusion. When he was seen in consultation twenty four hours later the blood pressure was 60/40. Intensive quinine treatment by vein was instituted. Infusions and transfusions were continued, but the patient failed to respond and died on September 5, eight days after his first chill. At autopsy all the capillaries of the brain were practically occluded by parasitized red cells.

The presenting symptom when the patient was first seen by a physician was coryza. If a blood smear had been examined at this time, it is probable that the diagnosis would have been established and that intensive treatment by mouth would have prevented the subsequent development of cerebral symptoms. Furthermore, intravenous treatment with large doses of quinine dihydrochloride as soon as the diagnosis was made might have prevented a fatal outcome.

Case 2.—J. R., a man aged 22, a welder, had been employed in Africa. He arrived in the United States on Feb. 4, 1943 by plane, having stopped at Accra for several days. He had a routine clinical examination in New York on February 8, at which time he had no complaints and there were no objective abnormal findings. His blood was not examined.

The patient first became ill on February 15 in Chicago, with chills, generalized aching, nausea, vomiting, headache and profuse perspiration. A physician found nothing noteworthy on examination except a temperature of 100 F. The provisional diagnosis was grip, and the patient received symptomatic treatment. He apparently improved during the next two days but became suddenly worse on February 18. On admission to a hospital that day he was restless and had a temperature of 104 F. There were no definite physical signs. The white count was 3,500 per cubic millimeter. No parasites were discovered in the thin film. The next day the temperature was normal, but severe headache and nausea continued. A consultant arrived at no definite diagnosis but suggested that typhoid, tuberculosis, leishmaniasis, Chagas' disease, malaria and pneumonia be considered. The next day a thin blood film revealed an overwhelming infection with P. falciparum. The patient was delirious and tried to get out of bed. The temperature rose to 104 F., and coma ensued. Two doses of quinine hydrochloride were given intravenously at an interval of eight hours. In addition oxygen was administered and fluids were given by vein. The temperature rose to 107 F. The patient had repeated convulsions and died on February 21, six days after the onset of his illness, three days after admission to the hospital and two days after the diagnosis was established. Specific treatment had been administered only on the day of death.

We have here an example of a person perfectly well on one day and dead six days later of cerebral malaria. At the onset the disease masqueraded as a simple upper respiratory infection. If at this time malaria had been borne in mind, repeated blood examinations by means of thick and thin films would have established the diagnosis and intensive treatment could have been begun early enough to prevent a fatal outcome.

Case 3.—J. U., a man aged 25, an aeronautic engineer, returned to the United States by plane from India on Oct. 2, 1942. He first became ill on October 10, when he complained of chills and coryza. He perspired profusely and called his physician, who found nothing striking in the examination and considered the complaints related to an upper respiratory infection, for which he prescribed symptomatic treatment. During the next few days the patient complained of severe headache and vomiting. He then suggested to his physician the possibility of malaria as the cause of his illness. Blood smears were positive and the patient was admitted to the hospital. During the next twelve hours he received only 5 grains (0.32 Gm.) of quinine sulfate in sugar coated pills after each meal. When seen in consultation the same day, the patient was delirious. There was slight jaundice, the reflexes were hyperactive and urination was difficult. The temperature was 104 F. Thin blood films revealed P. falciparum, approximately 210,000 per cubic millimeter. Gametocytes were moderately abundant and many monocytes contained malarial pigment.

The acute nature of the infection in the face of severe vomiting and pronounced parasitemia with probable cerebral localization indicated the necessity of intravenous treatment. Quinine dihydrochloride was given in doses of 0.6 Gm. every six hours for four doses accompanied by intravenous fluids. Thereafter quinine was given by mouth in doses of 0.6 Gm. every six hours for one week. The patient recovered promptly.

The presenting symptoms were those of an upper respiratory infection. Malaria was not considered until the patient suggested it. The diagnosis was readily established by blood examination. Clinically the patient seemed on the way to developing cerebral manifestations. Treatment when begun was not intensive enough in the face of the high parasitemia. Sugar coated pills are not advisable in the treatment of any form of malaria. Frequently these pills can be recovered in the stool, and one can never be sure that the drug is absorbed. Intravenous treatment with quinine and fluids brought about a rapid recovery.

Case 4.—E. T., a man aged 22, a college student, returned from Africa to the United States on Feb. 15, 1943 by plane. During the previous year he had been with the American Field Service Ambulance Corps. En route to this country he was held up for four weeks in Lagos, Nigeria, a highly malarious area. He arrived in New York on February 18 and became ill on February 22, when he experienced a severe chill.

His physician immediately examined a thin blood film and found a small number of P. falciparum parasites. The temperature was 105.6 F. Two 0.1 Gm. doses of atabrine were administered during the first afternoon. On the following day he received three tablets. The temperature did not fall below 104 F., and he was hospitalized. When seen in consultation the patient was delirious at intervals and confused with regard to time. The temperature was 104.4 F. There was slight icterus of the scleras, and the spleen was just palpable.

Quinine dihydrochloride 0.6 Gm. in 20 cc. of distilled water was administered intravenously and repeated after eight hours. Quinine sulfate by mouth was begun simultaneously in doses of 1 Gm. every six hours for the first twenty-four hours. The following day the temperature was lower and the patient seemed much better. Thin films contained no parasites, but examination of thick drops revealed a few rings of P. falciparum. Quinine sulfate 1 Gm. by mouth three times a day was continued for the next two days. The dosage was then reduced to 0.6 Gm. three times a day for the next two days. Further treatment consisted of the administration of atabrine 0.1 Gm. three times a day for seven days followed by plasmochin 0.01 Gm. three times a day. After the second day this had to be discontinued because of severe abdominal cramps and cyanosis.

Although the diagnosis was made at the onset of the patient's illness, treatment was not of sufficient intensity. Atabrine requires a large initial dose in order to attain an effective blood level in a short time. A rapidly developing falciparum infection may get out of hand if this is not recognized. In this case there was no predominant localization of symptoms with the possible exception of the brain, and one can consider it a case of severe general infection. This case also illustrates the occurrence of toxic symptoms from plasmochin in relatively small doses.

Gastrointestinal Involvement.—Gastrointestinal symptoms occur fairly frequently in falciparum infections. These symptoms may vary from mild nausea to intractable vomiting or severe diarrhea. Localized or general pain may occur. Patients have been operated on because of suspected intestinal obstruction or other acute abdominal conditions and have been diagnosed as having had malaria only at autopsy.

The presence of severe gastrointestinal symptoms indicates the necessity for intensive parenteral treatment, both specific and supportive.

Diarrhea may be particularly misleading in persons recently back from the tropics. Bacillary and amebic dysentery should be considered, but malaria must first be excluded. If parasites are found, specific treatment will result in a prompt cure of the diarrhea.

CASE 5.—P. C., a man aged 36, returned from Africa to the United States on May 19, 1942. He had been to Africa on numerous occasions to collect animals for zoological gardens and had had numerous attacks of malaria. He arrived in Boston and had a chill with pain in the chest. He was seen by a physician, who thought he might have pneumonia and advised hospitalization, but this was refused because he was in charge of a cargo of animals. The following day he suffered from severe diarrhea and vomiting and had another chill with a temperature of 104 F. He went to New York on May 21. He was seen in consultation, and blood examination showed 60,000 falciparum parasites per cubic millimeter. He was immediately hospitalized. On admission his temperature was 104.6 F. He continued to vomit and was definitely jaundiced. Three 0.6 Gm. doses of quinine dihydrochloride were given intravenously at six hour intervals. The patient's stomach was washed out and 2,000 cc. of saline solution with 5 per cent dextrose was given intravenously. After twenty-four hours the vomiting and diarrhea had stopped, the temperature was normal and the patient appeared much better. Quinine sulfate was then given for two days by mouth in doses of 1 Gm. three times a day after meals. A course of atabrine followed consisting of 2.4 Gm. during the next seven days. Finally, plasmochin 0.01 Gm. three times a day was given for five days.

With a history of numerous previous attacks of malaria and the patient's recent arrival from Africa, malaria should have been considered as a strong possibility even though his first localizing symptom was pain in the chest. Subsequently the predominant clinical manifestation was gastrointestinal.

CASE 6.—A. B. arrived in New York on Aug. 29, 1943 by plane from Africa. En route he remained at Accra for one week. He first became ill on September 6, when he complained of generalized aches, profuse perspiration and a severe chill. When he was seen by his physician the following day, his temperature was 103 F. The only physical finding was herpes labialis. He was placed on sulfadiazine. The following day he began to vomit and had another chill. The physician considered the possibility of malaria at this time and ordered quinine 0.3 Gm. three times a day. He was admitted to the hospital the following day. When seen in consultation he was acutely ill. The temperature was 101 F., and there was moderate icterus of the scleras. The tongue was brown and dry, and the spleen could be felt easily. The urine contained bile and increased urobilinogen. Examination of thin and thick blood smears revealed no parasites, but many of the monocytes and polymorphonuclear neutrophils contained malaria pigment. Since neither atabrine nor quinine for intravenous use was available and the patient had ceased vomiting, he was given quinine sulfate in capsules 1 Gm. three times a day for two days. Atabrine was then available and was administered in doses of 0.2 Gm. every six hours for five doses followed by 0.1 Gm. three times a day for six days, making a total of 2.8 Gm. Supportive treatment consisted in the liberal administration of intravenous saline solution and dextrose.

In this case severe vomiting and jaundice were outstanding. Specific treatment was not begun until the fourth day of the disease. It is interesting that after two days of sulfadiazine therapy and 2 Gm. of quinine no parasites could be found. It is known that sulfadiazine is partially effective in temporarily lowering the parasite density in P. falciparum infections. Probably the use of this drug followed by small doses of quinine accounted for the failure to find parasites in the peripheral blood.

CASE 7.—P. M., a contract engineer, arrived in Miami on March 26, 1943 by plane from Africa. On the same day he had severe chills, fever, vomiting and diarrhea. Hospitalization was suggested, but the patient proceeded to New York. He was seen in consultation on April 2 and stated that while in Africa in May 1942 he had had recurrent attacks of chills, fever and vomiting, for which he had been hospitalized several times. At no time were malarial parasites found in thin films. On one occasion his illness was believed to be prostatic disease.

On physical examination no striking abnormalities were noted. The temperature was 102.6 F. Examination of thick and thin films revealed P. falciparum rings and gametocytes. The patient was hospitalized and received quinine sulfate by mouth 1 Gm. three times a day for three days, then 0.6 Gm. three times a day for four days. He was then placed on atabrine 0.1 Gm. three times a day for seven days, followed by plasmochin 0.01 Gm. twice a day for five days. His temperature became normal on the second day and remained so throughout his stay at the hospital.

This patient stated that he had been born and raised in rural Tennessee and had been told that he had malaria as a child. Perhaps he had some immunity, since he was able to control his infection without treatment for a considerable length of time. The symptoms which this patient experienced for approximately eleven months were probably due to malaria, since they all promptly disappeared following treatment.

This case indicates that falciparum malaria may simulate a chronic infection of the urinary tract and then assume an acute stage.

Blackwater Fever.—This is the term applied to the clinical syndrome resulting from spontaneous intravascular hemolysis of red cells occurring in falciparum malaria. The mechanism of its induction is unknown, but it appears that red cells from blackwater fever patients have an increased fragility to lysolecithin, although their fragility to saline solution is normal. Normal red cells transfused into a patient with blackwater fever are destroyed just as readily as the patient's own cells, suggesting the presence of some circulating hemolysin. Predisposing factors seem to be continued residence in hyperendemic areas, numerous reinfections and incomplete and intermittent treatment. Precipitating causes are chilling, pregnancy, acute infections, trauma and quinine.

The outstanding clinical feature is the passage of dark red, brown or black urine containing oxyhemoglobin

and methemoglobin. In severe attacks jaundice, anemia and azotemia, and anuria occur. In mild attacks, however, abdominal and loin pain may be slight and clinical jaundice absent. Death may result early in the attack as a result of anoxia or later as a result of complete urinary suppression.

Blackwater fever occurs more commonly in hyperendemic areas of falciparum malaria. Occasionally a case is seen in the United States, but in most cases seen in this country the disease was acquired in the tropics and the attack follows shortly after arrival in a nonendemic area. One must therefore assume that hemoglobinuria in patients who have recently returned from the tropics is due to falciparum malaria. Blood examination cannot be depended on for diagnosis, because parasites sometimes cannot be found during the acute attack.

CASE 7.—C. L., a white man aged 20, was removed from the Seamen's Home in New York City to the psychiatric division of Bellevue Hospital because he was confused. On admission the patient stated that he had been sick for four days with chills, pain in the abdomen and flanks, nausea and vomiting. He had been in South America three weeks previously and thought that he had malaria on several occasions for which he had taken quinine intermittently but not during the past few months. The patient was apathetic and restless. His temperature was 103 F. There was pronounced costovertebral tenderness on both sides. Blood smears contained numerous rings of P. falciparum. The urine was dark red and contained large amounts of oxyhemoglobin and methemoglobin. Subsequent specimens varied from deep red to brown and almost black. He received several blood transfusions and large amounts of fluid intravenously. In addition he received atabrine by mouth in doses of 0.2 Gm. three times a day for the first three days and then 0.1 Gm. three times a day for five additional days. He became afebrile, and the urine returned to normal. He was discharged from the hospital thirteen days after admission.

In this case blackwater fever occurred either in the course of a recently acquired falciparum infection or during an early relapse. Prompt supportive treatment in the form of fluids and whole blood was successful in tiding the patient over during his period of intravascular hemolysis. Specific treatment against his malarial infection consisted of 3.3 Gm. of atabrine given in the course of a week.

Algid Form.—Occasionally one sees in acute falciparum infections a so-called algid variety. The patient collapses suddenly and presents the picture of medical shock. He may be afebrile. Unless one considers the possibility of malaria in this condition and institutes heroic treatment immediately, the patient usually dies within a short time.

DIAGNOSIS

The diagnosis of falciparum malaria depends essentially on finding the organisms in the blood and the identification of the species. Thin smears require proper staining, which should be heavier than is necessary for differential white blood cell counts in order to avoid missing the ring forms. A single negative thin film should never be depended on to exclude the diagnosis. Col. D. K. Lindsay[3] has aptly said "A negative blood slide has sent many to the grave." If necessary, smears should be repeated at intervals of twelve to twenty-four hours to insure discovery of parasites. In blackwater fever parasites may not be found at all during the acute attack. The examiner must be able to differentiate between malaria parasites, platelets, bacteria and other artefacts. In heavy infections monocytes and neutrophilic granulocytes may contain malaria pigment even in the absence of parasites. This is diagnostic and indicates a serious infection.

Thick drop preparations should be employed in every case in which the thin film is negative. In fact, every laboratory technician should be acquainted with the thick drop technic, and physicians should employ it routinely.

The characteristics of P. falciparum parasites as they appear in the peripheral blood must be borne in mind. Early in the infection one usually finds only the ring forms. These are usually small delicate rings and are frequently implanted at the margin of the red cell. Multiple infection of a single red cell is common. Double chromatin dots often occur and frequently are found at opposite poles of the ring. After the first week of symptoms one may also find the characteristic crescentic gametocytes. Thus in falciparum infections one usually finds only rings or gametocytes or both. In overwhelming infections, especially if the patient is in shock, one may find schizonts in the peripheral blood. The presence of malaria pigment in white blood cells is suggestive of heavy falciparum infection.

Clinically malaria should be suspected in any person with any complaint whatever if he has recently returned from the tropics. As has already been pointed out, the clinical manifestations may not be suggestive of malaria at all, and if one waits for the development of characteristic chills and fever it may be too late to begin successful treatment. Fever may be entirely absent even in overwhelming infections, and when fever does occur the temperature curve may not follow the usual pattern which we commonly associate with malaria. The white blood cell count or differential formula is not a reliable aid to diagnosis. We have seen white counts which were as low as 3,250 and as high as 46,000. Monocytosis may not be increased. Anemia may not have developed or may be very severe with the red count between 1 and 2 million. On the other hand, in overwhelming and even fatal infections there may be no evident anemia. Splenomegaly is not a constant finding in acute falciparum infection. When it does occur, enlargement does not reach the proportions which is usually seen in vivax malaria. Frequently even when the spleen is considerably enlarged, as demonstrated at autopsy, it may not be felt during life, possibly because it is very soft.

Thus it can be seen that it is impossible to present a clinical description of falciparum infection which will cover all its manifestations. The diagnosis can be made only if it is kept in mind and if suitable steps are taken to confirm it.

TREATMENT

In the treatment of falciparum infections it is very essential to start early and to use suitable drugs in sufficient dosage to insure an early and effective plasma concentration. An excellent statement on treatment can be found in Circular Letter 153 from the Surgeon General's Office, published in THE JOURNAL, Sept. 25, 1943,[4] and every physician is advised to keep this statement on hand for reference. All physicians should make sure that the hospitals in which they work have on hand atabrine hydrochloride in tablets for oral use and in ampules for intramuscular injections, and

3. Lindsay, D. K.: Guidance Notes on Pernicious Malaria, Tr. Roy. Soc. Trop. Med. & Hyg. **37**: 63 (July) 1943.

4. The Drug Treatment of Malaria, Suppressive and Clinical, circular letter no. 153, Office of the Surgeon General, U. S. Army, J. A. M. A. **123**: 205 (Sept. 25) 1943.

quinine dihydrochloride in ampules for intravenous use. Frequently small hospitals and rural pharmacies do not have these drugs on hand, and valuable time is lost in procuring them.

For the oral treatment of falciparum malaria physicians must depend almost entirely on atabrine. This drug, if properly used, is as effective as quinine by mouth in controlling infections, and its toxicity is minimal. It must be borne in mind that the drug is an acridine dye and frequently produces a yellowish discoloration of the skin, but this is not a sign of toxicity and is not an indication for altering or suspending treatment. The discoloration disappears a few weeks after cessation of treatment.

Totaquine (U. S. P. XII), a crude extract of the crystallzable alkaloids of cinchona, is advocated and is becoming available as a substitute for quinine in oral medication. It is effective in doses 50 per cent larger than those advocated for quinine. It should be used, however, only in vivax and malariae (quartan) infections and in mild or chronic falciparum cases.

Treatment of Uncomplicated Infections.—In the treatment of mild uncomplicated falciparum infections atabrine by mouth is recommended. During the first twenty-four hours two tablets of 0.1 Gm. each are given every six hours for five doses, making a total of 1 Gm. in the first twenty-four hours. Gastrointestinal symptoms are largely avoided if the drug is given with food or sweetened fluids. Following this, one tablet of 0.1 Gm. should be given three times a day after meals for at least six days, making a total of 2.8 Gm. in seven days.

If the patient cannot take atabrine, totaquine may be used in doses of 1.5 Gm. three times a day after meals for three days, followed by 1 Gm. three times a day for four days. In some hospitals or pharmacies quinine sulfate may still be available in small amounts for the treatment of malaria. If no other drugs are available or if atabrine cannot be tolerated, quinine sulfate in capsules or disintegrating tablets can be given. The initial dose for the first three days should be 1 Gm. three times a day followed by 0.6 Gm. three times a day for at least four days. Quinine should never be given in sugar coated pills. Rapid absorption may be assured by the addition of a few minims of dilute sulfuric acid to each dose of quinine.

Treatment of Complicated Infections.—In the presence of complications, such as vomiting, diarrhea or manifestations of central nervous system involvement, or in infections in which the parasite density is 50,000 per cubic millimeter or more, atabrine dihydrochloride should be given intramuscularly in solution, 0.2 Gm. in each buttock, making an initial dose of 0.4 Gm. This can be repeated for an additional one or two doses at six hour intervals. Treatment by mouth should be started as soon as the patient can retain oral medication. The dosage schedule should be such that the combined amounts from parenteral and oral therapy total 1.0 Gm. during the first twenty-four hours. Subsequent treatment consists of 0.1 Gm. three times a day after meals until a total of 2.8 Gm. has been given in one week. If atabrine is not available for parenteral use and the patient requires parenteral treatment, quinine dihydrochloride should be used intravenously. The initial dose should be 0.6 Gm. in an infusion of 200 cc. of 5 per cent dextrose in isotonic solution of sodium chloride. Quinine by vein should always be administered very slowly, since rapid injection may produce a definite fall in blood pressure. In high concentrations given quickly it may act as a direct cardiac poison. Epinephrine solution 1:1,000 should be on hand and if collapse occurs 1 cc. should be given intravenously. Intravenous therapy may be repeated every four to six hours until the patient is clinically well enough to continue medication by mouth. If at this time atabrine is available, 1 Gm. is administered during the first twenty-four hours in five divided doses of 0.2 Gm. each followed by 0.1 Gm. three times a day for six days. If atabrine is not available as soon as clinical improvement warrants oral therapy, quinine sulfate 1.0 Gm. or totaquine 1.5 Gm. in capsules should be given three times a day after meals for three days and then quinine sulfate 0.6 Gm. or totaquine 1 Gm. three times a day for four additional days.

Treatment of Comatose Patients.—Quinine dihydrochloride 0.6 Gm. should be given intravenously every four hours until it is evident that the patient is no longer critically ill. Atabrine is then begun in the manner already prescribed so that 2.8 Gm. is given in seven days. Spinal drainage may restore the patient to consciousness and should be performed. Fluids by vein should be administered freely so that the specific gravity of the urine is 1.010 or less. There is evidence that nicotinic acid (not nicotinic acid amide) produces dilatation of cerebral capillaries and increases cerebral blood flow.[5] It seems rational to include 100 mg. of nicotinic acid in the infusion containing each dose of quinine dihydrochloride to facilitate the penetration of the drug to the parasitized capillaries in which the effective lumen is reduced. If necessary nicotinic acid may be given intravenously every hour to maintain cerebral capillary vasodilatation. In 1 case this procedure restored consciousness immediately.

Treatment of Blackwater Fever.—Steps should be taken to prevent the precipitation of acid hematin, which may result in anuria. Sodium bicarbonate should be given, by mouth if possible, to maintain an alkaline urine. If necessary it may be given intravenously in the form of an infusion of 500 cc. of a 2 per cent solution in isotonic solution of sodium chloride. If anemia is severe or if the initial hemolysis produces severe anoxia, repeated transfusions of whole blood are indicated. Dextrose or plasma should be given freely to maintain a normal water balance and to stimulate urinary output. If parasites are present in the peripheral blood, atabrine is advised in the dosage already given.

Symptomatic Treatment.—This should include steps to insure restoration of salt and water metabolism to a normal state. In the presence of vomiting, the stomach may be washed out and subsequently liberal amounts of 5 per cent dextrose in isotonic solution of sodium chloride given intravenously so that the specific gravity of the urine is not above 1.010. If anemia is very severe, blood transfusions may be resorted to. In all cases of anemia, iron in the form of ferrous sulfate 0.3 Gm. three times a day after meals should be given as soon as possible.

INSTRUCTION OF PERSONS RETURNING FROM THE TROPICS

Every passenger and crew member of an airplane returning from a malarious region should be instructed to obtain medical attention on the first development of

5. Aring, C. D.; Ryder, H. W.; Roseman, Ephraim; Rosenbaum, Milton, and Ferris, E. B., Jr.: Effect of Nicotinic Acid and Related Substances on the Intracranial Blood Flow of Man, Arch. Neurol. & Psychiat. **46**: 649 (Oct.) 1941. Loman, Julius, and Myerson, Abraham: Alcohol and Cerebral Vasodilatation, New England J. Med. **227**: 439 (Sept. 17) 1942.

any symptoms of illness, even those of a common cold. Such instruction should be the responsibility of the steward on the plane. It can be accomplished by presenting to each passenger and crew member a card of convenient size carrying a carefully worded statement that he has probably been exposed to infected mosquitoes, that the disease may develop in a serious form within a few days or weeks, that the symptoms may be indefinite, and that he should have a physician examine his blood for malaria on the first appearance of any symptoms. Airplane companies and military departments should realize their responsibility for preventing fatalities from malaria and should be urged to provide such instructions for early diagnosis.

SUMMARY

Physicians throughout the United States may be confronted with the diagnosis and treatment of civilians recently returned from the tropics. Unless malaria is considered as a possibility in every case no matter what the symptoms, the disease may be overlooked and may progress to a point at which treatment is of no avail.

Every patient returning from the tropics should have a thick and thin bood smear examined for malarial parasites, and if negative this should be repeated every twelve to twenty-four hours until malaria is confirmed or excluded.

If the diagnosis of malaria is not made but the condition of the patient progresses unfavorably, specific treatment for malaria should be instituted. Such treatment should not interfere with other diagnostic procedures, cannot hurt the patient and may prevent fatalities. Search for parasites should be continued.

The clinical manifestations of falciparum malaria may not follow any given pattern. The symptoms of onset are most frequently mistaken for infections of the upper respiratory tract and various gastrointestinal disorders. Severe vomiting or diarrhea and signs or symptoms of cerebral involvement require intensive parenteral treatment.

Atabrine by mouth is recommended in all uncomplicated falciparum infections.

In cases of severe parasitemia or evidence of visceral localization, atabrine should be given intramuscularly or quinine intravenously. Such treatment must be started early and continued with intensity until there is sufficient clinical improvement to warrant changing to treatment by mouth.

In coma or predominant cerebral localization, quinine dihydrochloride should be given intravenously every four hours with dextrose solution and isotonic solution of sodium chloride. Spinal drainage may be useful in restoring consciousness. Nicotinic acid intravenously is recommended to produce dilatation of cerebral capillaries.

Only serious consideration of the possibility of malaria in illnesses occurring among patients with a history of recent residence or travel in the tropics and early intensive treatment will prevent serious complications and fatalities.

Passengers and crew members of all airplanes returning from malarious regions should be warned to obtain a blood examination for malaria at the onset of any illness.

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PRODUCTION OF BLOOD DERIVATIVES TO MEET WAR REQUIREMENTS IN GREAT BRITAIN

WITH A NOTE ON THE LARGE SCALE PREPARATION OF A DRIED PRODUCT

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In a country at war the choice of a blood substitute and its preparation must be considerably influenced by the special circumstances of the moment. The present review describes briefly the various phases through which this subject has passed during the last four years and the position reached at the present time.

With the return of peace it may well be that many different blood substitutes will be brought forward, but the assessment of their relative merits will entail much clinical trial and experience.

Stored whole blood has but a limited life and therefore cannot be made universally available; moreover, there are certain conditions such as burns in which the circulatory volume is reduced without a corresponding reduction in the number of red cells and in which a transfusion containing red cells may not be beneficial. Certainly in war and probably also in peace there is a definite need for a stable "blood" substitute which will restore and maintain the blood volume. Intravenous saline solution has long been used and, though in some instances its effects have been dramatic, its failing is that the injected crystalloid rapidly diffuses into the tissues and so the beneficial effect is but transitory. For this reason infusions of saline solution and acacia were introduced during the last war because the colloid osmotic pressure exerted by the acacia rendered the beneficial effects of the saline solution more lasting. But apparently the acacia was not removed from the body and there is some evidence that the retained acacia may lead eventually to liver damage.

Nature's method of retaining fluid in the circulation is by the colloid osmotic pressure exerted by the plasma proteins. Animal plasma protein is readily available in ox and horse plasma, but these proteins are foreign to man and their use involves all the problems of the sensitization of the individual.

Early in 1940 it was appreciated from the work of American observers that human plasma and possibly serum might meet the urgent demands which were being made for a blood derivative. Since in England it is essential to maintain large blood banks owing to the possibility of many air raid casualties occurring in any part of the country, human plasma is available in large amounts as a waste product from such banks.

It is essential that the blood derivatives should be really stable and free from infection. Liquid unfiltered plasma or serum is undoubtedly more stable than whole blood, but on storage the plasma tends to clot and both throw down a flocculent precipitate. This instability is moreover accentuated by the shaking which occurs during transport and by fluctuations in temperature. Shaking can be minimized by filling the bottles completely, but storage in equitable temperatures is not practicable under service conditions. Further, both plasma and serum are excellent culture mediums and the odd organism which may escape detection on routine bacteriologic examination will multiply to formidable proportions before the bottle is used. This is a real danger,

From the Drying Unit of the Medical Research Council.

since detec on of infection by naked eye inspection, which is the only method available to the clinician, may prove difficult in a material which is normally opalescent and in which precipitation naturally occurs.

Sterility could, on theoretical grounds, be ensured by the addition of an antiseptic such as merthiolate, but Mackay [1] has shown that no antiseptic is available at present which, if used in sufficient strength to assure sterility, might not be considered dangerous to the patient who received a large infusion of such a fluid.

The danger of infection is greatly reduced, though not eliminated, by Seitz filtration. After a short trial of unfiltered plasma, workers in England insisted that liquid serum or plasma should not be used unless it had been Seitz filtered, since Seitz filtration gave a clear fluid in which any cloudiness or precipitation due to infection could be detected. Further, there was some evidence (which has since been proved to be incorrect) that if the ictogenic factor was present it might be removed by Seitz filtration. Clinicians were instructed not to use liquid serum or plasma which was cloudy or showed a precipitate. This, while eliminating the danger of giving infected material, had the result that after a few months storage all the material was returned to the blood depots because of the natural precipitation which inevitably occurred. Seitz filtration, though essential from the point of view of sterility, introduced a major difficulty in the preparation of plasma, for it adversely affects its stability and leads to clotting.

At the beginning of the war there was much controversy over the relative merits of serum and plasma. Those who favored plasma claimed that serum was toxic, citing the experiments of Brodie [2] on the injection of homologous serum into cats; they also stated that the absence of fibrinogen might result in serum being a less valuable fluid than plasma. Owing to the difficulties encountered in filtering plasma, and since at that time it was essential to produce a blood product rapidly and in quantity, large amounts of filtered serum were used and the expected fears were not realized clinically. Nothing simulating the Brodie phenomenon has been observed in man. Reid and Bick [3] have shown that serum and plasma tend to possess smooth muscle contracting substances and that normally serum contains these factors in larger amounts than plasma. It is not clear that clinically these factors may not have their value, but experiment has shown that these pharmacologically active substances are minimal in serum if the serum is prepared by clotting plasma or in clotted whole blood if the clots are kept cold and separation and Seitz filtration are carried out as speedily as possible. Those who favor serum cite the difficulties of filtration, the instability and dilution of filtered plasma and the possible harmful effects of the citrate.

If plasma is to be collected, 420 cc. of blood is drawn into 120 cc. of dextrose citrate solution. If the bottles are allowed to stand in the cold room the cells sediment and about 250 cc. of plasma can be siphoned off; this represents about 14 Gm. of protein in a 5.6 per cent solution. The yield is not greatly increased by centrifuging the bottles but can be increased by the use of the alpha Laval separator: the use of this separator is, however, restricted to fresh blood, for blood which has been stored for more than three days is grossly hemolyzed by this procedure.

If serum is required, 540 cc. of blood is collected in a dry bottle, the blood allowed to clot and the serum poured or siphoned off, giving a yield of about 40 per cent, or 215 cc. of a 7 per cent protein solution or 15 Gm. of protein. Thus, since one can bleed more into the standard bottle when dry, in spite of the lower yield, actually more protein can be obtained from the donor who is bled for serum.

The serum or plasma is separated into 2 liter pools, all groups being mixed. A bacterial count is done on these pools prior to filtration; theoretically no contaminated pool should be used, but as a wartime measure material containing less than 100 organisms per cubic centimeter is accepted provided it does not contain pathogenic organisms. The fluid is next clarified through a cotton pulp filter and then passed through a Seitz filter press. If the material is serum, this offers no difficulties; but plasma will clot unless special precautions are taken.

The first method of overcoming this difficulty with plasma was the rapid filtration method of Macfarlane and his collaborators.[4] This method up to a point was satisfactory but was wasteful in filter pads, and the filtered material was liable to undergo delayed clotting particularly if kept in the cold. To overcome this the "alkali wash" method was introduced by Bushby, Buttle and Whitby.[5] This method undoubtedly achieved its end but was clumsy to operate and if, after washing through the filter, the plasma was collected too soon serious dilution occurred; if too late there was serious wastage of plasma. This method as carried out by different workers met with varying success. Bushby and Whitby [6] then introduced the "alkali" process; this method is undoubtedly simpler than the "alkali wash" method, but the material is very liable to precipitate especially on transportation, and there appears to be some alteration in the plasma proteins.

Liquid serum and plasma were both used successfully in the raids of 1940-1941, but they were not ideal products for the reasons mentioned. Many atempts have been made to produce a more stable liquid, of which the most successful in this country has been the low temperature ether extraction method of Macfarlane; [7] after this process a beautifully clear product results which has lost its lipoids and which remains clear from clouding and precipitation for some months—the actual time awaits the results of observation now in progress. Moreover, if pasma is treated by this method the fibrinogen is removed, so that filtration can be effected without the risk of clotting.

Where it has been possible to hold the liquid material in the frozen state this method has been tried, but even in warm water the bottles take at least half an hour to thaw, and when the supplies are wanted in a hurry this is too long a period; moreover, under war conditions it may be that all forms of heat have been cut off by bombing, in which case the material will not be available for several hours and this slow thawing will then cause the precipitation of fibrin in the plasma—an accident which would also occur following any prolonged refrigeration failure. This method, therefore, has found little favor.

1. Mackay, Margaret E.: The Bacteriostatic Effect of Disinfectants in Human Serum and Citrated Plasma, Lancet **1**: 747 (May 17) 1941.
2. Brodie, T. G.: The Immediate Action of an Intravenous Injection of Blood Serum, J. Physiol. **26**: 48, 1900.
3. Reid, G., and Bick, Marjorie: Pharmacologically Active Substances in Serum, Australian J. Exper. Biol. & Med. Sc. **20**: 33 (March) 1942.
4. Macfarlane, R. G.; Macsween, J. C.; Mainwaring, B. R. S., and Parish, H. J.: Technic for the Filtration of Human Plasma and Serum for Transfusion, Brit. M. J. **1**: 377 (March 21) 1942.
5. Bushby, S. R. M.; Buttle, G. A. H., and Whitby, L. E. H.: Small Scale Filtration of Citrated Plasma, Lancet **2**: 131 (Aug. 3) 1940.
6. Bushby, S. R. M., and Whitby, L. E. H.: Certain Properties of Plasma, with a New Method for Large Scale Production of a Nonclotting Product, J. Roy. Army M. Corps **78**: 255 (June) 1942.
7. Macfarlane, A. S.: Annual Report of the Governing Body of the Lister Institute, 1943, p. 10.

Though liquid serum and plasma are unstable, in the dry form they appear to be completely stable and can be transported anywhere and stored in any climate; moreover, if required the dried product may be reconstituted in a concentrated form.

The dry product has the disadvantage that there is no decrease in its bulk; in fact, as the solvent has also

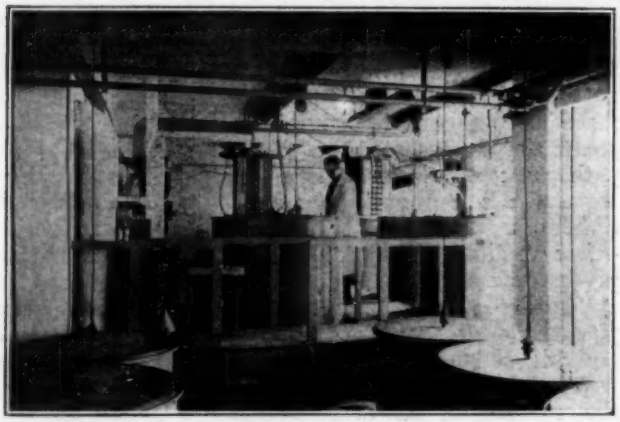

Fig. 1.—General view of the desiccator room, showing the secondary desiccators in the foreground and the primary desiccators with the loading staging in the background. The heater heads from the two chambers which are defrosting are raised.

to be transported the bulk is actually increased; moreover, the extra manipulation of making up the dried product, although it occupies only half a minute, is a disadvantage. On solution also the dried product is cloudy, owing to an alteration of the lipoid distribution. This can be avoided by a preliminary low temperature ether extraction, but since clinically this cloudiness seems to be of no significance the extra complication of the ether extraction would not appear to be justified as a wartime measure, though obviously in peacetime the elegance of the preparation would justify the extra cost and complication of the process.

Although liquid serum and plasma were extensively and successfully used for civilian casualties, on account of their instability they were less satisfactory for the services, which therefore had to have priority on the limited supplies of the dried product that were available. The advantages of a really stable product were, however, so great that further drying facilities were made available, and now it may be said that in this country they are probably sufficient to meet the day to day demands of the war situation both for the services and for the civilian population. The time has come, therefore, to consider whether technical methods should not be developed which would allow plasma and serum to be dried without filtration, and this possibility is being borne in mind. Conditions might arise, however, when for a short period at any rate the drying facilities could not meet the demands which would then have to be met by the issue of liquid material. It is thus still important from the point of view of the war effort that experiments on the production of a stable liquid product should continue, apart from their intrinsic interest as a problem in protein chemistry.

It is probable that experience in blood banking methods will lead to a great decrease in the amount of time expired blood that is turned over to the processing plants, and that in order to meet the demands for a blood derivative donors will be bled specifically for this purpose. Since a really satisfactory method for filtering plasma still remains to be found, the tendency in this country is already to keep the amount of waste blood bank plasma to a minimum and to bleed donors for serum to meet the need for a blood derivative. In this way the advantages that serum has when compared with plasma, namely a higher protein content, no added chemicals and ease of filtration, can be utilized. Owing to the shortage of supplies and of skilled personnel, no attempt has as yet been made in this country to produce purified albumin by the alcohol method of the Harvard group, nor has any attempt been made to find substitutes for human protein such as bovine albumin, gelatin, isinglass, pectin or casein hydrolysates.

THE DRYING OF SERUM AND PLASMA

The drying plant at present operated by this unit is based on the experimental model of Greaves and Adair [8] and on the experience gained with several similar plants of intermediate size. The capacity of the plant is 2,500 bottles each containing 400 cc. per week; provision is made for doubling this output if required.

The bottles of liquid serum or plasma first have their metal caps removed, and these are replaced by a special "drying cap." These consist of a layer of cotton wool between two layers of muslin fixed over a perforated metal cap with a steel ring. These caps will allow the passage of water vapor but prevent the entry of bacteria into the bottles. Thus if this change of caps is carried out with sterile precautions the bottles can be taken through the whole drying process without risk of contamination. The bottles after capping are placed in a cold room at + 2 C. to precool over night.

The next day the bottles are "spun frozen." [9] In this process 108 bottles at a time are spun on their vertical axes at a speed of 900 revolutions per minute in a cold room maintained at — 18 C. Under these conditions a cone is forced down through the fluid, which is flung to the periphery of the bottle, where it freezes, thus exposing a maximum surface for evaporation during the drying process together with a minimum depth of frozen material. Under these conditions the plasma freezes with a very small crystal size, and this has the effect of making the dried material extremely rapidly

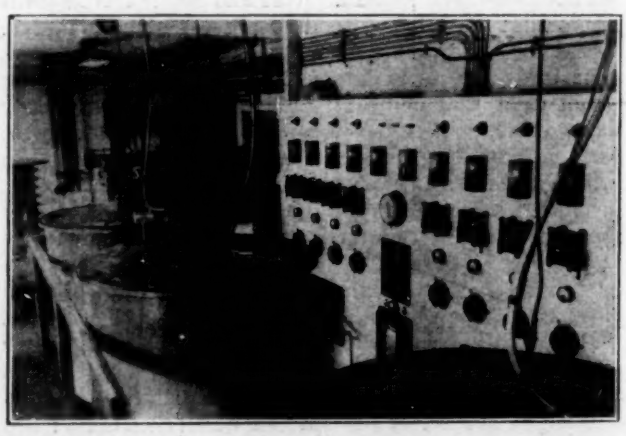

Fig. 2.—General view of desiccator room, showing the drying control panel on the right.

soluble, the solution time of the dried product being less than half a minute.

The "spun frozen" bottles are then transferred to a storage room maintained at — 25 C. This room has a capacity for storing 5,000 bottles, or fourteen days'

8. Greaves, R. I. N., and Adair, Muriel E.: High Vacuum Condensation Drying of Proteins from the Frozen State, J. Hyg. **39**: 413 (July) 1939.

9. Greaves, R. I. N.: The Freezing of Human Serum and Plasma in Medical Research Council Transfusion Bottles, Before Drying by Sublimation from the Frozen State, J. Hyg. **41**: 489 (Dec.) 1942.

supply, and so acts as a buffer between fluctuating supplies and the drying plant.

The drying apparatus consists of eight steel vacuum chambers 3 feet in diameter by 6 feet high. In the bottom of each chamber is a steel coil through which brine cooled to between — 41 and — 44 C. is circulated. The lid of each chamber has attached to it a nest of 180

Fig. 3.—View of the engine room showing the two automatic compounded ammonia refrigerator compressors.

tins into which the bottles fit, and round each tin is an electric winding used for heating the bottles during desiccation. The amount of heat used, 1¾ kilowatts per chamber, is regulated so that the drying cycle takes three days. Thus two chambers are loaded and two chambers are unloaded each day.

The eight chambers are connected by a common manifold to two 3 horsepower single stage vacuum pumps; these pumps are backed by small single stage pumps. During evacuation of a chamber both pumps are used, but after this one pump will maintain the six chambers which are in operation at a vacuum of 0.15 mm. of mercury (Pirani).

In each chamber is a control bottle containing a thermocouple which records the temperature of the material being dried. During loading and evacuation the temperature of the serum rises to — 20 C., but once the critical vacuum (about 1 mm. of mercury) is passed the temperature starts falling, owing to the latent heat of evaporation of the ice. When the temperature reaches — 30 C., heating is started and the temperature rises to — 22 C., where a state of equilibrium is obtained till the material is nearly dry. At this stage the temperature starts rising, and when the plasma is dry this temperature is allowed to rise to + 30 C., at which it is maintained thermostatically.

On unloading, the evaporated water is found as ice on the refrigerated coils at the bottom of the desiccator; this ice is thawed by circulating heated brine through the coils, the water is removed and the dry chamber is made ready for reloading the next day.

On removal from these primary chambers the dried material contains 0.4 per cent of its dry weight of residual moisture. This is removed by placing the bottles in a secondary desiccating chamber in a high vacuum over phosphorus pentoxide for two days. After these two days of further desiccation the bottles are removed and their drying caps replaced with a rubber washer covered with a screw-down metal cap which has a small hole punched in its center; a sterile hypodermic needle plugged with cotton wool is then stuck through the hole in the metal cap and the rubber washer, and the bottles are returned to the secondary desiccators for a further two days desiccation in vacuum. About 1 Gm. of phosphorus pentoxide is required for each bottle for the whole of this secondary stage desiccation. Finally the vacuum in the secondary chambers is replaced with pure dry nitrogen to a slightly positive pressure; the chambers are then opened and the needles pulled out of the bottles, which are now absolutely dry and packed in pure dry nitrogen. The holes in the metal cap and the rim are now sealed with plasticine and the bottle neck finally dipped in a "Perspex" lacquer to give a hermetic seal.

Thus each bottle takes seven days to go through the whole drying cycle, and the output is 360 bottles per day or 2,500 bottles per week. Provision is made to double this output, if required, by running a shorter schedule.

Refrigeration is required for the drying chambers, the spinning room and the storage room. This is provided by circulating cold brine from a common tank maintained at between — 41 and — 44 C. by two compounded ammonia compressors. Normally one compressor can balance the whole load, the other acting as a reserve standby.

In the event of a prolonged mains failure, which has to be considered in wartime, a petrol motor is arranged to operate one of the vacuum pumps and another petrol motor will operate the pump circulating the brine through the primary desiccators. With a store of 6 tons of cold brine in the tank, it is estimated that the mains would have to fail for longer than twenty-four hours to cause any serious difficulty.

An alarm system operates in the event of a mains failure, if the brine temperature rises to — 40 C. or if the vacuum rises to 0.2 mm. of mercury (Pirani). When the alarm system operates, all heater circuits are immediately switched off automatically. This alarm system has proved a great saving in manpower, since only one person need be on duty at night; and, since he can sleep, he is able to work the next day. In fact, it has been one of our main considerations in designing this plant that it should require a minimal personnel

Fig. 4.—The freezing room, showing the apparatus for "spin freezing" 108 bottles each containing 400 cc. of fluid. The fan in the background circulates the air over the freezing unit, which is behind the diaphragm, maintaining the temperature of the room at —18 C.

to operate it and, by making the plant simple and automatic, the staff for continuous running seven days a week has been kept to five men, three skilled, two semiskilled; one mechanic on half time, and eight unskilled women. Since it requires just less than 2 units of electricity to freeze, store and dry each bottle, the process is cheap to run.

PROSTATIC CARCINOMA TREATED BY ORCHIECTOMY

A SECONDARY REPORT BASED ON SEVENTY-FIVE CASES OBSERVED FOR AT LEAST TWENTY-ONE MONTHS FOLLOWING OPERATION

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AND
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Fifteen months ago a follow-up study was conducted on 75 cases of prostatic carcinoma treated by orchiectomy in the University Hospital, and the data published in THE JOURNAL (Dec. 5, 1942). The present report is concerned with a subsequent follow-up study made on the same series of cases, and twenty-one months or more have now elapsed in each case since operation. The advantage of following a closed series of cases until the death of the last survivor is obvious; and although this series is numerically a relatively small one, we believe that any obvious trends that are observed in its study might be of value in treating future cases.

All the patients in this series except 4 had infiltrating carcinoma. Forty-three were suffering from pain, cachexia or other clinical manifestations of advanced cancer, and the remaining 32 all had obvious primary lesions but were not suffering subjective disturbance from metastases even though some of them were shown by x-ray examination or by phosphatase determination to have bony involvement.

CLINICAL RESPONSE TO ORCHIECTOMY

Pain.—The most spectacular feature of these cases is the early and satisfactory relief of pain, which occurs in from twenty to seventy-two hours in most instances in which relief is obtained. We have observed 2 or 3 exceptions to this general rule, however, in cases in which relief of pain came on very gradually after a period of several weeks. Forty-two[1] of the patients complained of pain on admission. Five of the patients obtained no relief whatever following operation, while 27 have obtained complete relief of pain and 10 obtained partial relief.

Weight.—Eighteen patients complained of significant weight loss on admission to the hospital. Thirteen of these regained their weight losses; however, 38 additional patients had appreciable gains in weight following orchiectomy, some gaining as much as 50 to 60 pounds (about 25 Kg.). There are doubtless many factors which contribute to these postcastration increases in weight.

Urinary Obstruction.—Fourteen patients complained of difficulty with voiding or complete retention of urine on whom orchiectomy was performed and on whom no operation for the relief of prostatic obstruction was carried out. Five of these patients were placed on suprapubic drainage at the time of orchiectomy and all of them were eventually able to urinate satisfactorily so that the cystotomy tubes were removed. Nine patients at the time of orchiectomy complained of significant difficulty with urination, and all have experienced more normal urination subsequent to castration.

Transverse Myelitis.—Two patients were admitted to the hospital complaining of severe metastatic pain and complete transverse myelitis below the mid-dorsal level. Both had complete relief of pain and complete return of neuromuscular function following orchiectomy, and both patients have subsequently had a recurrence of symptoms and have died.

SUMMARY OF RESULTS

Ten of the patients in this series derived no benefit whatever from orchiectomy; 5 died within six months of operation while 4 died during the ensuing fifteen months and 1 is still alive twenty-two months after castration.

Sixty-five of the patients were improved clinically by orchiectomy, but many of these have derived only temporary benefit. Duration of clinical improvement in the delayed failure group has been variable and we have found no criteria for predicting the prognosis in any case. Comparison of data compiled fifteen months ago and now is as follows:

At the time of the first report there were 20 failures, including 5 dead, and since that time 21 additional patients have had a recurrence of symptoms. One third of the patients have now died of their primary disease, 20 having died during the past fifteen months.

At the present time 34 of the patients continue to enjoy a favorable response to orchiectomy. These are all free from pain and cachexia or other subjective manifestations of extensive carcinoma, and in most instances the objective signs of their disease—size of the primary tumor, hardness of the prostate gland, x-ray evidence of metastases, serum phosphatase levels—have remained at a measurably improved level since operation. However, all of the favorable response cases, with 4 exceptions, continue to show unmistakable clinical signs of prostatic cancer, a fact which affords additional evidence to suggest that orchiectomy provides only temporary suppression of neoplastic activity. Since the control of prostatic cancer activity by hormonal modifications as now practiced is only temporary and since consequently the resulting clinical improvement is palliative and not curative, one might logically raise the question as to the most favorable time for instituting this form of therapy: Should castration be performed in all cases as soon as the diagnosis of prostatic cancer is established, or should it be delayed until the clinical manifestations of advanced malignancy have developed? In answering this question the following facts should be borne in mind: Prostatic carcinoma is notoriously variable in its rate of growth and spread and many patients having bony metastases survive comfortably for years without any treatment whatever. Undoubtedly endocrine therapy suppresses the neoplastic development of both early and advanced cases and in each instance it produces a corresponding prolongation of life but it does not permanently retard the growth of the primary tumor nor does it prevent the occurrence or the eventual progression of metastases. Likewise castration in early cases does not preclude the eventual development of terminal pain and cachexia. It therefore would appear rational to delay the insti-

Results by Groups

	Group 1		Group 2	
	Cases	Per Cent	Cases	Per Cent
Alive and well	22	68.7	12	28
Failures living	6	18.8	10	24
Failures dead	4	12.5	21	48
Total	32	100.0	43	100

From the Department of Surgery, University of Michigan Medical School.

1. Six cases are here included in which pain was evidenced from local neoplastic extension, but these cases are not included in the group of 43 cases of advanced neoplasm herein reported.

tution of endocrine therapy until pain or cachexia develops, for only by this means can the patient hope to derive the dual benefits of this treatment, viz. prolongation of life by suppression of carcinogenic activity and relief of pain. The employment of this therapeutic agency at a time prior to the onset of symptoms would appear to be premature, for then it might deprive the patient of significant clinical benefits. So it seems apparent that accurate timing is required for the most economical expenditure of hormonal control.

The present series of 75 cases has been broken down into two groups for the purpose of comparative study. Those in which there were no symptoms of advanced disease at the time of castration comprise group 1, while those in which pain, cachexia or other complaints were present make up group 2. They are summarized in the table.

In group 1 the high survival rate is not unexpected or surprising. Bumpus studied 1,000 cases of prostatic cancer at the Mayo Clinic in 1926 and found that the average survival period of the entire group was thirty-one months after diagnosis. The incidence at this time of 31.3 per cent of failure cases in group 1 clearly demonstrates that castration does not constitute prophylaxis against the occurrence or development of metastases.

Additional data compiled on group 2 are of particular interest in evaluating this method of treatment. The 12 patients who are living and well have all survived twenty-one months or more, the longest period since operation being thirty-six months. The 10 failures in this group who are still alive enjoyed a favorable response for an average of 11.4 months. The terminal stage in delayed failure cases has been of short duration in most instances.

The average duration of life in the group of 21 who died was 11.3 months, although 7 of these survived less than nine months. The latter figures gain added significance when compared with those compiled by Bumpus, who found that when metastases had occurred at the time of examination two thirds of the patients died within nine months. An advantage of endocrine therapy is indicated by the fact that only 7 of our patients (16 per cent) having metastases which were producing pain at the time of orchiectomy failed to survive the nine months period. The survival of 84 per cent as compared to 33 per cent in the Bumpus series, at the stated interval of time, is obviously to be credited to advance in our methods of treatment.

In this series there has been no effort made to compare the efficiency of estrogenic therapy with that of castration. The relative worth of the two methods can be appraised only by a study of controlled parallel series. We are at the present time treating a series of patients with diethylstilbestrol [2] and will report the results observed in that group at a later date.

In the present series there were 2 patients who obtained relief of pain following castration who had previously failed to derive any benefit from the ingestion of diethylstilbestrol 3 mg. daily for several weeks. Likewise there are now 2 of the orchiectomy delayed failure patients who were relieved of their recurrent pain following administration of the estrogenic substance.

CONCLUSIONS

A second follow-up study conducted on a series of patients treated by orchiectomy for prostatic cancer gives continued evidence of the value of this form of treatment.

Forty-five per cent of the patients remain free from symptoms twenty-one to thirty-six months after orchiectomy, but 21 patients previously reported as showing favorable response have had recurrent symptoms of advanced disease and several of these are dead. The increasing incidence of delayed failure in this series suggests that eventually all cases may fall into this category.

It is evident that endocrine therapy increases the life expectancy of patients with prostatic cancer by causing a suppression of carcinogenic activity for temporary but varying periods of time; and this temporary control of the neoplasm is accompanied clinically by a period of relief from symptoms resulting from the malignant disease.

It would seem logical to conclude that the maximum benefit to the patient may be derived by delaying endocrine treatment until indicated by the onset of symptoms arising from advanced or metastatic lesions. Only in this manner can the longest period of palliative relief be assured.

2. Diethylstilbestrol is being supplied by the Eli Lilly Company.

THE CONSERVATIVE TREATMENT OF CHRONIC BURSITIS

BY INJECTION OF SCLEROTIC AGENTS COMBINED WITH DRAINAGE

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Chronic bursitis has long been successfully treated by injection of a chemical sclerotic agent into the endothelial sac, effecting an obliteration of the sac by adhesive fusion of its surfaces.[1] An accepted practice consists in aspiration of the sac, introduction of an irritant, withdrawal of some part of the irritant and the application of a compressive dressing. Reeffusion, if any thereafter, is aspirated as required. In the main, this method has given satisfaction.[2]

To reduce the number of reaspirations ordinarily necessary after the usual method of care, a variation in technic has been adopted which shortens treatment time and facilitates fusion.

Increase in cases is resulting from the greater number of workmen laboring in confined spaces where elbows and knees come in frequent contact with hard surfaces. Cases here reported were seen in a group of shipyard workmen.[3]

A variety of pathologic types of bursitis were encountered. Fifty cases of bursitis have been observed, of which 30 were olecranon bursitis, 18 prepatellar bursitis and 2 semimembranosus bursitis (Baker's cyst) in the popliteal space. Of the 30 cases of olecranon bursitis, 3 presented acute hemorrhage in the sac, 8 presented infected sacs and 19 presented chronic effusion. Of the 18 cases of prepatellar bursitis, 4 presented hemorrhage in the sac, 2 infection and 12 chronic effusion. Of the 2 cases of popliteal bursitis, 1 presented hemorrhage and the second chronic effusion.

Appropriate treatment was given patients with hemorrhage and infection. Sacs containing "rice bodies" were surgically excised.

1. Riddle, Penn.: Injection Treatment of Hernia, Hydrocele, Ganglion, Hemorrhoids, Prostate Gland, Angioma, Varicocele, Varicose Veins, Bursae and Joints, Philadelphia, W. B. Saunder Company, 1940. Sarma, P. J.: The Injection Treatment of Ganglions and Bursae: Indications and Limitations, S. Clin. North America **20**: 135-140 (Feb.) 1940.

2. Carp, Louis: The Conservative Treatment of Prepatellar Bursitis, Surg., Gynec. & Obst. **52**: 87-91 (Jan.) 1931.

3. Employees of the California Shipbuilding Corporation, Ltd., Consolidated Steel Corporation, Ltd., and Western Pipe & Steel Company.

This article deals primarily with chronic bursitis in which effusion has been present for some time, particular consideration being given to the advantage of continuous drainage of the sac after an irritant has been introduced.

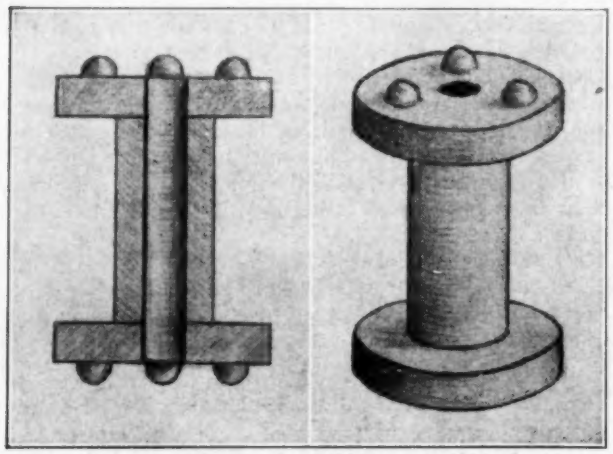

Fig. 1.—Specially designed self-retaining hollow spooled bursal rubber drain, three times actual size.

Initial treatment in all cases of chronic bursitis is administered in the field hospital. This consists of sterile aspiration of the sac followed by the application of a compressive dressing. When it is demonstrated that this simple treatment does not obliterate the sac, chemical obliteration is then undertaken.

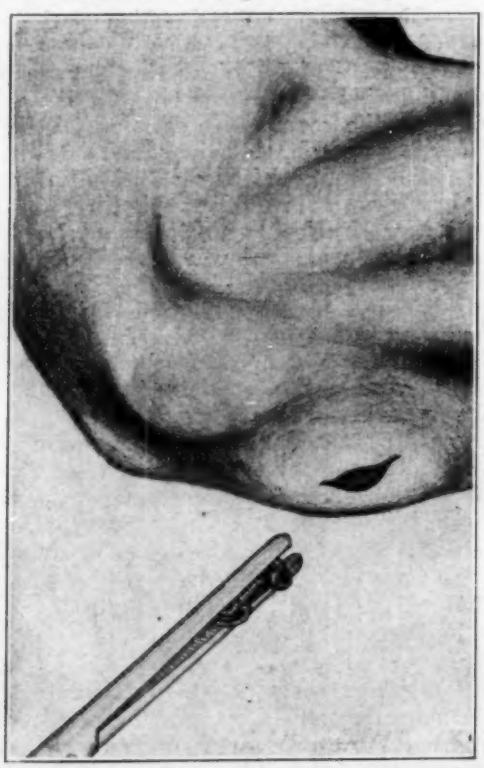

Fig. 2.—Incision through procaine hydrochloride infiltrated skin over olecranon bursa. Folded rubber bursal drain ready for insertion into bursal sac.

The technic employed consists in thorough cleansing the skin, which is painted with an antiseptic. Two per cent procaine hydrochloride is infiltrated intradermally over the sac. A 0.5 cm. transverse incision is then made into the sac, into which is introduced a specially devised hollow tubed, spool shaped soft rubber drain.[4] The contents of the sac are allowed to drain off; when empty the sac is refilled through the drain, 2 to 5 cc. of a sclerotic agent being introduced by means of a glass tip syringe inserted in the drain. The sclerotic agent is retained within the sac for five to ten minutes and then drained off. A rubber sponge pad cut out about the drain, which is covered by a fluff dressing, is held in position over the bursal sac by an elastic adhesive dressing which does not encircle the extremity. In some cases the part is further immobilized by an elastic bandage. This primary dressing is left in position twenty-four hours and then a fresh dressing is applied. The drain itself is left in situ forty-eight to ninety-six hours, at the end of which time it is

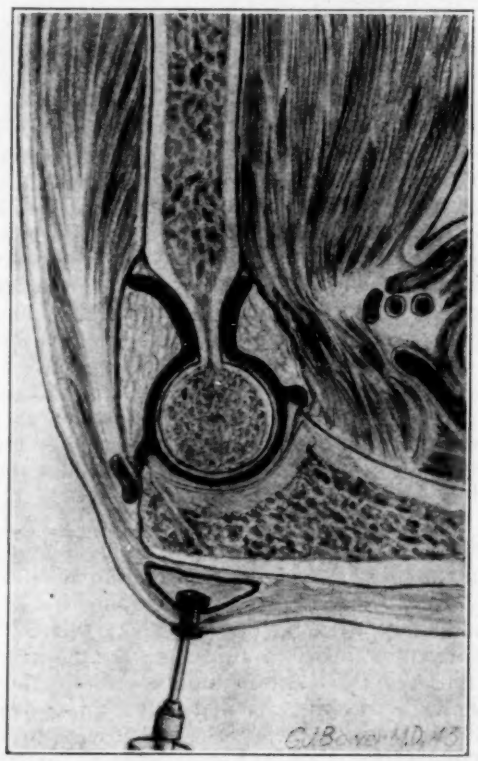

Fig. 3.—Bursal drain in position. Sac distended with sclerotic agent introduced through drain. Agent left in sac five to fifteen minutes, then aspirated off.

removed, the compressive dressing being continued. Reexamination after five to seven days usually demonstrates that the sac has been successfully obliterated. In subsequent weeks reeffusion has rarely been observed.

Continuous drainage of an uninfected structure may invite infection. Special consideration was given this potential complication, particularly under circumstances wherein men return to employment in dirty, dust laden environments. In no instance, however, has infection occurred, perhaps because the reactive inflammation set up by the irritant establishes an effective barrier against bacterial invasion.

Materials used for sclerosis were sodium morrhuate 5 and 10 per cent; tincture of iodine 0.5 per cent; proliferol solution and sodium psylliate 5 per cent.[5] The latter has been found routinely satisfactory, effecting a mild type of irritation without excessive reaction.

Of 15 patients with chronic olecranon bursitis so treated, 14 have been apparently cured. One has a recurrent effusion which will require secondary treat-

4. Manufactured by the Kirkhill Rubber Company, Los Angeles.
5. Sylnasol (trade name, Searle & Co.).

Summary of Results

Bursitis

Total cases, all types	50
Location of bursae:	
1. Olecranon	30
2. Prepatellar	18
3. Popliteal	2

Pathology

Olecranon:	
1. Acute hemorrhage in sac	3
2. Acute infection in sac	8
3. Chronic effusion	19
A. Multiple aspirations	1
B. Surgical excision	3
C. Chemical obliteration	15
Patellar:	
1. Acute hemorrhage in sac	4
2. Acute infection in sac	2
3. Chronic effusion	12
A. Surgical excision	1
B. Chemical obliteration	11
Popliteal:	
1. Hemorrhage and effusion	1
2. Chronic effusion	1
A. Chemical obliteration	1

Chemical Obliteration

Olecranon bursitis:	
Number of cases treated	15
Materials used:	
1. Sylnasol	10
2. Proliferol	2
3. Sodium morrhuate	1
4. Dextrose	1
5. Tincture of iodine	1
Average number of visits	3
Duration before treatment:	
Longest	5 months
Shortest	14 days
Duration of observation after treatment:	
Longest	10 months
Shortest	1 month
Time Loss:	
1 case	5 days
14 cases	0 days
Results:	
Failure	1
Cure	14
Prepatellar bursitis:	
Number of cases treated	11
Materials used:	
1. Sylnasol	5
2. Proliferol	3
3. Sodium morrhuate	3
Average number of visits	3
Duration before treatment:	
Longest	12 months
Shortest	2 weeks
Duration of observation after treatment:	
Longest	11 months
Shortest	1 month
Time loss:	
1 case	8 days
1 case	4 days
1 case	3 days
7 cases	0 days
Results:	
Failure	1
Cure	9
Popliteal bursitis:	
Number of cases	1
Material used: sylnasol	
Number of visits	4
Period of observation	5 months
Time loss	0
Results: full recovery	

ment. The bursae had existed from fourteen days to five months prior to treatment. The period of observation after treatment has extended from one to ten months. The number of office visits required does not range over four or five. Loss of time from work has been minimal.

Eleven cases of prepatellar bursitis were treated with ten apparent cures. One recurrent bursa will require additional attention. Prepatellar bursae so treated have existed from two weeks to twelve months. The period of observation after treatment has ranged from one to eleven months. Again, frequency of visits and time off from work have been minimal.

Chemical obliteration of a popliteal bursa was effective in the case treated. Prior to injection, multiple aspirations had adequately demonstrated that the bursa sac did not communicate with the knee joint, which safely permitted this type of treatment.[6]

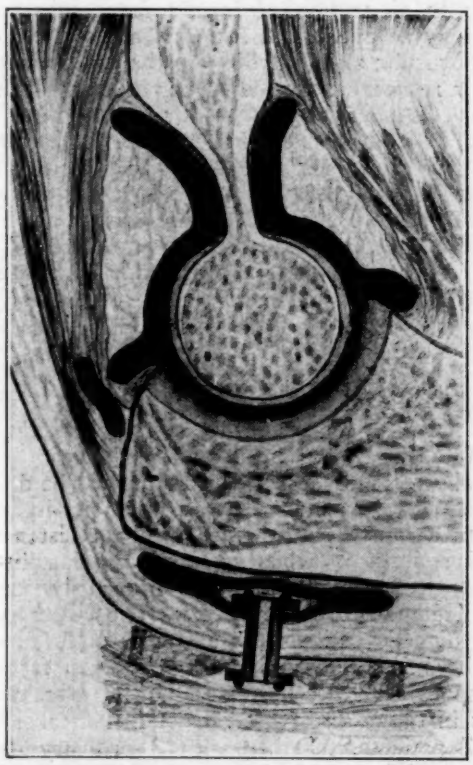

Fig. 4.—Drain in position in irritated sac; sponge rubber and gauze compressive dressing applied.

SUMMARY

Of 50 cases of bursitis of various types involving the olecranon, prepatellar and popliteal bursae, chemical obliteration treatment was used in 27 cases presenting chronic effusion. Other appropriate methods of treatment were used in the remaining cases. In 27 cases treated by chemical obliteration in which a special type of rubber drain was used, 25 have apparently been cured. The number of required office visits is minimal and loss of time from work is short. The use of an indwelling specially devised rubber drain after injection of the irritant appears to reduce the necessity of reaspirations, shortens treatment time and results in a satisfactory number of cures.

920 Security Building.

6. Meyerding, Henry W., and Van Demark, Robert E.: Posterior Hernia of the Knee, J. A. M. A. **122**: 858-861 (July 24) 1943.

ABSORPTION OF INSULIN LABELED WITH RADIOACTIVE IODINE IN HUMAN DIABETES

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Delay in absorption of insulin from subcutaneous tissues may be one of the factors that reduce the efficiency of insulin and contribute to the condition known as insulin resistance. In 3 diabetic patients with insulin resistance, studies of the respiratory quotient after ingestion of dextrose had indicated so little effect on the quotient even when insulin was given as to suggest that some specific factor might retard the absorption of insulin. When injected intravenously, insulin was more effective than when injected subcutaneously. In 1 of these patients, areas of fatty atrophy under the skin were present not only where insulin had been injected but in certain parts of the body, such as the breasts, where insulin had never been injected. Furthermore, the subcutaneous tissue in certain parts of the thighs and the abdomen of this patient seemed to have a different consistency from the tissue in other parts of the body, so that it appeared likely that the rate of absorption of injected insulin might be different in one part of the abdominal wall from that in another part. In a fourth patient with insulin resistance, the peak of resistance (when 630 units of insulin were required) had passed two years previously, and she exemplified the phase of recovery from resistance. In 3 other diabetic patients the existence of localized fat pads where insulin had been injected too frequently in one spot provided a means of showing whether such changes in tissue affect the rate of insulin absorption. These 7 patients, together with 3 ordinary diabetic patients [1] and 5 nondiabetic controls, afforded an excellent opportunity for measuring the variations in the rates of absorption of insulin after subcutaneous injection by using an insulin labeled with radioactive iodine.

Previous Studies.—The absorption rate of insulin from the site of injection has been previously studied by Beecher and Krogh,[2] who injected protamine zinc insulin into a rabbit's ear, using methylene blue as a tracer. Biologically active derivatives of crystalline insulin, containing iodine and arsenic, have been prepared by Lang and Reiner.[3] Reiner, Keston and Green [4] studied the absorption and the distribution in animals of an insulin derivative containing radioactive iodine. Ten rabbits were injected subcutaneously with two thirds of a unit per kilogram. The rabbits were killed at given intervals, and the skin at the site of injection and corresponding parts of the abdominal wall were removed. Blood samples were taken for sugar determination. The tissues were then analyzed, and the amount of iodine remaining at the site of injection was quantitatively determined. They found that in these small animals the rate of removal of insulin from the site of injection was so rapid that by the end of two hours approximately 80 per cent of the insulin had been absorbed. The fall in blood sugar was greatest at a period from one and one-half to two hours after injection, earlier than is usually found in human beings. In rats one hour after intravenous or intracardiac injection the circulating blood contained a considerable fraction of the radioactive material injected. Relatively large quantities of the material were also found in the liver and the kidneys, suggesting concentration of insulin in these organs. These results provided a method by which the rate of absorption of insulin in human subjects could be measured.

Injection of Radioactive Insulin and Counting the Gamma Rays.—With three exceptions (case 7 and 2 controls), the subjects to receive the insulin compound [5] came to the laboratory in the morning without breakfast and also had no lunch. The site of injection was carefully marked with mercurochrome, so that the window of the gamma ray counter could be applied directly over it. A dose of 25 units of radioactive insulin-4-iodoazobenzene [6] was injected with an ordinary hypodermic needle one-half inch in length, inserted at a slight angle so that the deposit of insulin finally occurred at somewhat less than one-half inch below the surface of the skin, exactly in the center of the ring (three fourths of an inch in diameter) on which the window of the counter rested. The injection was made in the subcutaneous tissue overlying the deltoid muscle except in cases 1, 5, 6 and 7. In case 1 the abdominal tissue was always used for injection, and in cases 5, 6 and 7 (in which there were insulin pads at the hip and in the anterior portion of the thighs) the same pad was used as the site of injection. When the injection was made, care was taken to avoid pinching of the tissue. Without any squeezing of the subcutaneous tissue the needle was inserted quickly, allowed

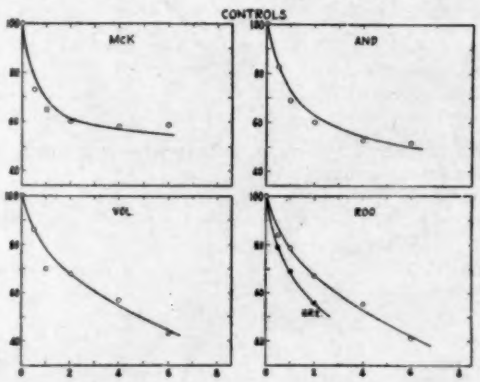

Chart 1.—Rate of insulin absorption after subcutaneous injection of 25 units of radioactive insulin-4-iodoazobenzene (normal control subjects). In chart 1 and also in charts 2 to 5 the ordinates represent the counts of the gamma rays expressed as percentages of the initial count (100 per cent) and the abscissas indicate the hours after insulin injection.

From the George F. Baker Clinic (Elliott P. Joslin, medical director), New England Deaconess Hospital, Boston, the Massachusetts Institute of Technology, Cambridge, Mass., the Wallace & Tiernan Products, Inc., Belleville, N. J., and the Nutrition Laboratory, Carnegie Institution of Washington, Boston.

1. A clinical summary of the diabetic patients is given in the appendix.

2. Beecher, H. K., and Krogh, A.: Microscopic Observation of the Absorption of Insulin and Protamine Insulinate, Nature **137**: 458 (March 14) 1936.

3. Lang, E. H., and Reiner, Laszlo: Crystalline Insulin Derivatives, Science **93**: 401 (April 25) 1941.

4. Reiner, Laszlo; Keston, A. S., and Green, M.: The Absorption and Distribution of Insulin Labeled with Radioactive Iodine, Science **96**: 362-363 (Oct. 16) 1942.

5. Dr. F. B. Peck of the Eli Lilly Company provided zinc insulin crystals for preparing the product.

to remain three or four seconds and then quickly withdrawn. In the normal subjects and in most of the diabetic patients no leakage of insulin out through the needle track occurred. However, in certain of the insulin resistant patients leakage of one or two drops did occur, and this leakage was carefully blotted by

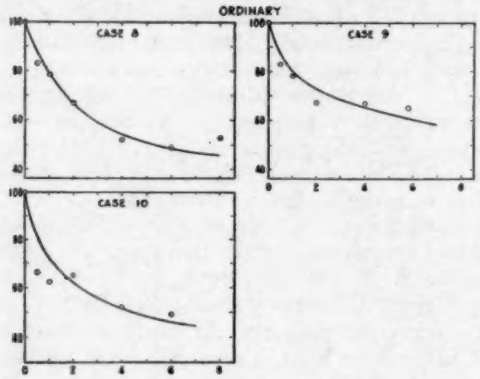

Chart 2.—Rate of insulin absorption after subcutaneous injection of 25 units of radioactive insulin-4-iodoazobenzene (ordinary diabetic patients).

means of sterile gauze. The strength of the insulin was such that an injection of 25 units meant injection of 0.5 cc. by volume. After the injection of insulin the counter was applied immediately. Thereafter the patients returned for counts at intervals of twenty minutes, one hour, two, four and eight hours, the time being carefully measured by a stopwatch in each instance according to a prearranged schedule and recorded.

RESULTS

Rate of Insulin Absorption.—In charts 1 to 5 are presented curves showing the trends of the gamma ray rates as observed with recording counting meters for each subject at each period of measurement following the injection of the radioactive insulin compound. In each chart the rates are expressed as percentages of the initial count and plotted against the time expressed in hours. For example, with the control subject McK. (chart 1) at the end of two hours a count equal to

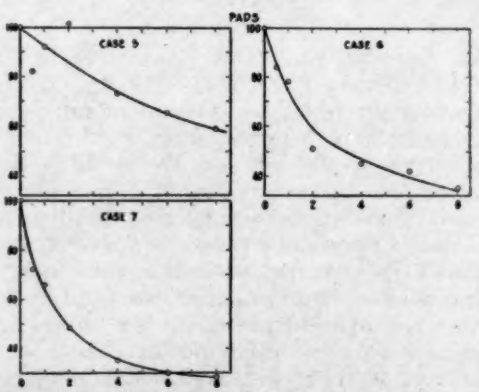

Chart 3.—Rate of insulin absorption after subcutaneous injection of 25 units of radioactive insulin-4-iodoazobenzene (diabetic patients with insulin pads). In cases 6 and 7 the insulin pads had not been used as the site of injection for days prior to the study.

60 per cent of the initial count was obtained, indicating the presence at the site of injection of 60 per cent of the injected insulin. One surmises that individual differences in subcutaneous tissue may have been present. With some persons the subcutaneous circulation might tend to bring about a movement of insulin toward the surface. An explanation for some of the variation is that the actual site of injection may not have been in all instances in the center of the circle but, because of the length of the needle, off to one side. Variations in depth of insertion of the needle also will produce slight differences in count because of the absorption in tissue of emerging gamma rays. However, sufficient counts were made in each instance to give a clear picture of the rate of absorption.

The curves obtained with the normal controls (chart 1) and the ordinary diabetic patients (chart 2) are strikingly similar in nature. They indicate that the rate of insulin absorption was rapid during the first one to two hours and became progressively slower during the next four to six hours.

A striking contrast appears in the patients who had insulin pads (chart 3). Large, firm, fatty pads, seemingly fully 1 inch in depth, occurred over the head of each femur of patient 5, where she had long injected insulin because, with the development of the pad, the injections became painless. In cases 6 and 7 the fatty pad had developed similarly because of repeated injections, but for a much shorter period than in case 5. However, these pads had not been used as a site of injection for a number of days prior to our study.

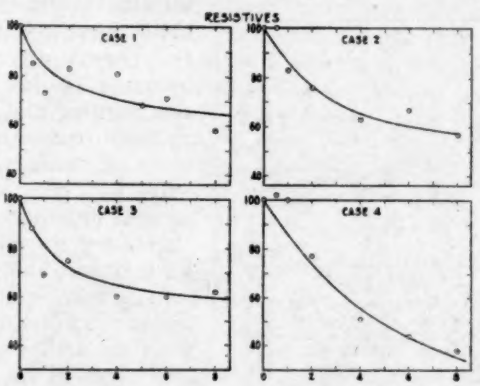

Chart 4.—Rate of insulin absorption after subcutaneous injection of 25 units of radioactive insulin-4-iodoazobenzene (insulin resistant diabetic patients). Case 4 represents a stage in recovery from insulin resistance.

This had resulted in rapid softening of the pads, and they had become much thinner, so that the insulin actually was deposited in more nearly normal tissue under the pad. Case 5 showed an extraordinary delay in insulin absorption, whereas cases 6 and 7 gave normal absorption curves (chart 3). A rapid change in rate of insulin absorption can therefore be brought about by cessation of repeated injections into an insulin pad.

Among the 4 insulin resistant patients the curves for patients 1, 2 and 3 (chart 4) show a definite delay in insulin absorption, especially during the first two hours, and in these 3 instances the delay in absorption persisted even to the eighth hour. In cases 1, 2 and 3 diabetes had existed for 20, 4 and 11 years. The diabetes had been strikingly mild for 18, 2 and 10 years respectively when the condition of insulin resistance developed. The diabetes of patient 4 was of 7.6 years' duration. She had had insulin resistance for more than seven years, but great improvement had occurred in the last two years. The decline in insulin requirement is associated with a curve (chart 4) indicating an almost normal rate of insulin absorption. Patient 1 also has shown such improve-

ment during the ten months since these studies. She has gained weight, and the subcutaneous tissue seems more nearly normal.

The differences in the average rates of absorption of insulin by the three groups control, ordinary diabetic patients and resistive patients are shown in chart 5. When the results are plotted on semilogarithmic graph paper the curves do not become straight lines but retain a curvature somewhat similar to their appearance in charts 1 to 5. This means that the rate of uptake of insulin from the site of injection does not correspond to a constant fractional absorption having a single absorption coefficient. The absolute rate and the fractional rate of absorption are both most rapid immediately after injection, and both decline steadily as the most accessible insulin is absorbed from the tissues of the injection site.

Blood Sugar.—Periodically throughout the day of the test (Nov. 29, 1942) blood sugar determinations (table 1) were made with capillary blood to show the effect of injections of insulin on blood sugar and to ascertain whether wide variations in the level of blood sugar might of themselves affect the rate of withdrawal of the injected insulin from the subcutaneous tissue. Actually it was not justifiable to give each patient 25 units of the radioactive insulin only, because the insulin resistant patients were accustomed to receiving large amounts of insulin in the morning, and unless in such cases the 25 units of radioactive insulin had been supplemented by other insulin the blood sugar might have risen to an excessive level. Furthermore, since the diabetic patients with 1 exception received no breakfast, 100 cc. of orange juice was given each hour to avoid hypoglycemia. The five normal controls, of whom 2 had taken a light breakfast, received no food during the test. Four showed a decline in blood sugar consistent with the insulin dose of 25 units. And was an exception. In one control subject, Vol, hunger and sweating developed at the end of four hours, suggesting hypoglycemia. He therefore took food, with the result that the blood sugar at the end of four hours rose from 70 to 123 mg. In the 4 resistant cases, supplementary doses of one-half the usual morning doses of insulin were given, the amounts varying between 50 and 100 units. In these 4 cases (cases 1 to 4) the blood sugar values rose during the first two hours and failed to reach normal levels at six hours. The other 6 diabetic patients actually showed a decline in blood sugar during the four to six hours such that hypoglycemic reactions occurred, requiring still further additional carbohydrate in the form of orange juice. The 25 units of radioactive insulin was therefore fully as effective in reducing the blood sugar as had been anticipated. The insulin resistant cases stand out in distinct contrast to all the other cases.

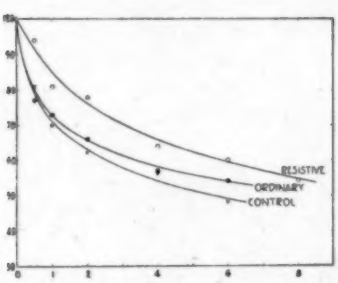

Chart 5.—Comparison of the average rates of insulin absorption of normal controls, ordinary diabetic patients and insulin resistant diabetic patients.

If patients 5 and 6 are compared (patient 7 had taken breakfast), it is seen that insulin pads affect the blood sugar curves. Patient 5 usually received 10 units of crystalline and 30 units of protamine zinc insulin; patient 6, 13 and 44 units, respectively. The 25 units of radioactive insulin was therefore a relatively larger dose for patient 5 than for patient 6, especially in view of the omission of breakfast and lunch. At the end of one hour the blood sugar of patient 5 had fallen only 23 mg., but that of patient 6 had fallen 143 mg. The rates of decline were almost the same in the second hour, but in the fourth and sixth hours patient 5 showed a decline to a hypoglycemic level. The maximum fall in blood sugar was 183 mg. for patient 5 and 190 mg. for patient 6. When the difference in weight of these patients (patient 5 weighed 96 pounds, or 43.5 Kg., and patient 6 112 pounds, or 51 Kg.) and therefore the difference in the total dextrose content of the body fluids are considered, it is evident that insulin probably caused oxidation or storage of a much larger quantity of dextrose in patient 6 than in patient 5.

Patients 8, 9 and 10 were young persons with uncomplicated diabetes under good dietary control. Under such conditions the 25 units of insulin, with orange juice each hour, prevented wide variations in blood sugar, although each patient complained of hypoglycemic symptoms in the third to fifth hours and received extra orange juice. The average maximum fall in blood sugar at four hours was 19 mg. for the normal controls (without breakfast) and 44 mg. for these 3 diabetic patients, an evidence of the ability of the nondiabetic organism to withstand the effect of added insulin. Although the rate of insulin absorption was approximately the same, the fall in blood sugar and the development of hypoglycemic symptoms in the diabetic patients, in spite of their receiving orange juice each hour, showed a susceptibility to hypoglycemia not exhibited by the normal subjects, of whom only Vol received food after the injection.

The hypothesis that hyperglycemia might accelerate and hypoglycemia delay insulin absorption from the site of injection is not supported by the data. It is likely, therefore, that local tissue conditions affect the rate of withdrawal of injected insulin rather than the level of the blood sugar. As the level of the blood sugar must be regarded as correlated not only with the level of sugar in the intercellular fluid but also with the dextrose concentration and the dextrose metabolism in the cells, it is also probable that the rate of insulin absorption is not conditioned solely by the state of intracellular dextrose metabolism.

Measurement of Radioactive Substance in Twenty-Four Hour Urinary Excretion.—Although no methods were available by which we could quantitate the excretion of insulin into the urine, it was felt desirable that a measurement should be made of the radioactive substance found in the urine excreted during the twenty-four hours following the injection. In all probability the amount of radioactive substance found in the urine represented the amount of iodine present in some organic combination. It is impossible to conclude, however, that the iodine excreted in the urine was still in combination with insulin, and therefore it is impossible to infer anything with regard to the excretion of the insulin injected. The results of the measurements are shown in table 2, in which the amount of radioactive substance found in the urine is expressed as a percentage of the total radioactive substance injected. In general, the lower values for the excretion of radioactive iodine are found in the 4 resistant patients, although patient 2 excreted 74 per cent. Among the patients with pads, the one who had the greatest delay in absorption, patient 5, excreted 66 per cent.

FACTORS INFLUENCING INSULIN ABSORPTION

The molecule of the insulin compound employed is somewhat larger than the unmixed insulin molecule. Possibly this larger molecule would be less rapidly absorbed than ordinary insulin. Furthermore, the ratio of the insulin dose to body weight is significant.

TABLE 1.—*Blood Sugar Before and After Injection of Radioactive Insulin-4-Iodoazobenzene*

(Values in Milligrams per Hundred Cubic Centimeters)

Case No.	Complications	Before Injection (Without Breakfast)	After Injection ½ Hr.	1 Hr.	2 Hrs.	4 Hrs.	6 Hrs.
Diabetic Persons							
1	Resistive	266	266	308	288	266	207
2	Resistive	228	246	294	302	282	234
3	Resistive	164	200	191	210	205	160
4	Resistive, recovering	246	266	247	228	191	166
5	Pad	228	216	205	166	45	56
6	Pad, recovering	260	152	117	85	82	70
7	Pad, recovering	186*	222	237	222	79	56
8	None (ordinary)	140	152	154	138	65	87
9	None (ordinary)	130	103	138	135	102	79
10	None (ordinary)	93	93	76	87	62	308†
Normal Controls							
McK		97	87	87	85	82	
And		79	82	82	82	76	
Vol		100	97	82	70	123§	
Gre		105*	103	86	79	..	
Roo		111*	103	103	79	76	

* Had breakfast before blood test.
† Received lunch 30 minutes before this blood test.
§ Took food before this blood test, because hunger and sweating had developed.

Although Reiner, Keston and Green [4] gave their rabbits two thirds of a unit per kilogram, in our study the insulin dose of 25 units amounted to between one third and one half of a unit per kilogram. It is also true that insulin is less rapidly absorbed in human subjects than in small animals. Reiner, Lang, Irvine, Peacock and Evans [6] have shown with rabbits that only 22 per cent of injected crystalline insulin remained at the end of five hours. Globin zinc insulin was more slowly absorbed, but protamine zinc insulin was most gradually removed, so that 60 per cent of the protamine zinc insulin remained at the site of injection at the end of ten hours. Regardless of the differences between animals and human subjects, however, the object of our study was to use a constant dose of the compound in a group of patients and a group of normal controls to determine whether there were significant differences in the rates of absorption among the different individuals.

The normal controls and the ordinary diabetic patients showed an almost equal rate of insulin absorption, and their curves are well within the range of physiologic variation. The patients with insulin resistance and insulin pads showed interesting differences. Slow absorption of insulin from the site of injection occurred in 3 patients with insulin resistance and in 1 patient whose insulin dose was injected certainly into the middle of an insulin pad. Patient 4, formerly requiring 630 units, had so improved that she took only 120 units a day. This fact seems to correlate well with her nearly normal curve. Insulin injected into an insulin pad may be slowly liberated. This may explain the well known clinical observation that patients who use such insulin pads do lose in the efficiency of insulin and may require a correspondingly higher dose.

The cases with insulin resistance require more detailed consideration. An abnormal metabolic rate might be supposed to influence absorption of injected insulin. In the 4 cases of insulin resistance the basal metabolic rate had been found to be within normal limits on a number of occasions (see appendix). Certainly in none was there any suggestion of a lower basal metabolic rate which could influence the rate of absorption. The general circulation, as indicated by cardiac size, blood pressure and the absence of edema, gave no explanation for the delay in absorption. It might be supposed that in these persons some peculiar sensitiveness to injected insulin could produce local thrombosis of vessels, with impairment in absorption. If this was the case, no evidence in the form of localized swelling or redness was apparent.

The state of allergy to insulin is well known to be associated with insulin resistance. At the New England Deaconess Hospital [7] a small number of patients have been observed who developed simultaneously a high degree of insulin resistance and an allergic state characterized by the appearance of general urticaria, when insulin was given. This condition has always occurred in patients who have previously taken insulin but then have stopped it for some months. On resumption of the use of insulin, the state of allergy to insulin was apparent. In certain cases, study of the blood serum has shown the presence of a large amount of specific insulin antibodies. In case 1, urticaria had at one time followed insulin injection. The blood serum of patient 4 did show specific insulin antibodies in large amount, and a persistent eosinophilia usually exceeding 20 per cent occurred. At this time (in 1936) she required 630 units daily. In 2 of 4 insulin resistant patients, therefore, either urticarial or other allergic manifestations had been present in the past. The duration of insulin treatment prior to the development of insulin resistance was usually less than two years. Persistence in the use of large doses of insulin has always resulted in a reduction in the insulin requirement, and, as illustrated by case 4, seems to be paralleled by an improvement in the rate of absorption of injected insulin.

TABLE 2.—*Radioactive Substance in Urine Excreted During Twenty-Four Hours Following Injection of Radioactive Insulin*

Case No.	Type	Urine Excreted in 24 Hours, Cc.	Radioactive Substance in Urine, %
1	Resistive	1,310	52
2	Resistive	1,484	74
3	Resistive	1,358	45
4	Resistive, recovering	681	46
5	Pad	1,322	66
6	Pad, recovering	1,674	67
7	Pad, recovering	2,072	50
9	Ordinary diabetic	1,249	65
McK.	Nondiabetic	912	68
And.	Nondiabetic	625	50

6. Complete details for the preparation of this compound have already been published (Reiner, Laszlo; Lang, E. H.; Irvine, J. W., Jr.; Peacock, W., and Evans, R. D.: The Absorption Rates of Insulin, Globin Insulin and Protamine Zinc Insulin Labeled with Radioactive Iodine, J. Pharmacol. & Exper. Therap. **78**: 352-357 [Aug.] 1943). Two additional refinements were introduced for this preparation. Before the p-iodoaniline was diazotized, it was acidified and treated with a small amount of dilute sodium nitrite solution. The liberated iodine was then extracted with chloroform. After coupling and purifying were carried out as described in the paper mentioned, the insulin-4-iodoazobenzene solution was filtered through a small Berkefeld filter into a sterile vial, which was then closed with a sterile rubber cap. Analysis of the product showed that 10 per cent of the radioactive iodine was coupled with the insulin. This corresponds to 0.13 microgram of iodine per unit or 0.85 atom per molecule of insulin.

7. Joslin, E. P.; Root, H. F.; White, Priscilla, and Marble, Alexander: The Treatment of Diabetes Mellitus, ed. 7, Philadelphia, Lea & Febiger, 1940, p. 410.

CHANGES IN DIABETIC TISSUES ASSOCIATED WITH INSULIN ADMINISTRATION

The subcutaneous structural changes following repeated injections of insulin previously studied have included areas of inflammation, lipomatosis, increased fibrosis and areas of fatty atrophy. The first report on such structural changes, by Depisch [8] in 1926, has been followed by numerous careful studies. In 20 per cent of the patients with atrophies studied by Marble and Smith,[9] areas of induration were likewise found. Areas of lipomatosis have been described by Rowe and Garrison.[10] It is probably true, however, that many of the tumefactions consist of masses of fibrous tissue in response to the repeated trauma of insulin injections. The finding of low grade inflammatory reactions is discussed by Marble and Smith, and reference to the literature on this subject may be found in their article. Areas of fatty atrophy, shown as depressions, particularly in the thighs or in the subcutaneous tissues of the arms where insulin has been given, are common occurrences. In certain instances areas of atrophy have occurred in regions where no insulin has been given, notably in the breasts, as in case 1 of this series. In the study of such patients reported from the New England Deaconess Hospital by Marble and Smith,[9] tissues excised from areas of atrophy in 4 patients were subjected to microscopic examination and, in addition, analyses were made of the subcutaneous fat in diabetic and normal rats. In both the rats and the patients the striking change noted was the loss of fat, chiefly neutral fat. The histologic study bore out the impression that the process consisted in the simple disappearance of stored fat, as by lipolysis, without evidence of an inflammatory reaction.

The presence in human subcutaneous fat of a lipase that may split tributyrin and, to a lesser extent, triolein has been demonstrated, and the effect of insulin on this lipase under various conditions is being studied by Marble and Smith. The conjecture has been made, but never confirmed, that in the immediate neighborhood of injected insulin a highly increased rate of dextrose combustion takes place and that an increased destruction of fat follows. Actually, in general, the patients who develop fatty atrophy when using insulin are often those who take small doses of insulin, and there is no general tendency toward the development of insulin resistance in patients who show fatty atrophy.

Fatty atrophy in the subcutaneous tissues, therefore, does not afford a profitable comparison to explain the change in rate of insulin absorption observed in the patients of our series, although the supposition may reasonably be entertained that in some of our cases the long continued injections of insulin might have provoked some disappearance of fat and relative increase in the fibrous stroma in the subcutaneous tissues resembling that seen in areas of insulin atrophy.

Patients with insulin resistance frequently have gone through periods of relatively mild diabetes varying in length from months to twenty years, and then in a few months (see case 1 in appendix) they have developed insulin resistance. The clinical importance of insulin resistance is that it may develop rapidly in patients whose diabetes has long been mild and the insulin dose only moderate. The physician may fail to recognize the necessity for massive doses of insulin. The patient's death in coma may be erroneously ascribed to insulin failure, when actually the cause was the administration of insufficient insulin.

The changes in local tissue associated with the formation of the insulin pad can disappear rapidly. In cases 6 and 7, in which the insulin pads were rapidly disappearing, the rate of insulin absorption was actually a little better than that of the nondiabetic normal subjects. This raises the question whether the rate of absorption of insulin may be influenced by the need of the tissues for insulin. It is conceivable that in the patient with moderately severe diabetes a condition of "insulin hunger" exists, in contrast to the condition of the nondiabetic subject who has a normal supply of insulin from his own pancreas. Therefore the rate of absorption of injected insulin might well be slower in normal than in diabetic tissue. Possibly this explains the fact that in the ordinary diabetic patients and in the 2 patients who were recovering from the formation of insulin pads the rate of absorption of insulin was apparently equal to or even a little better than that of the nondiabetic controls, particularly if the values at the six hour period are compared. The average amount of radioactivity remaining at the end of six hours was 48 per cent in the 5 normal controls, whereas it was only 36 per cent in the 2 patients recovering from the formation of insulin pads. On the day of the test the insulin was injected into these 2 persons through areas of pad formation that had previously been deliberately avoided for ten days or more in the administration of insulin. Therefore, not only had the pad rapidly subsided in these patients but there had been no local trauma or irritation from insulin for a long period. It is common knowledge that diabetic patients who systematically practice giving insulin injections according to a map may avoid injecting insulin into the same area for ten days or even a month. Such patients rarely have any local evidences of trauma from insulin, and it is usually thought that they get better absorption of insulin. These data afford clear proof of the importance of planning insulin injections on a definite schedule, so that the same site of injection will not be used more than once in two weeks.

Extraordinary differences in the rate of absorption of injected insulin can be demonstrated in different diabetic patients. We cannot conclude that the phenomenon of insulin resistance is entirely explained by these variations in local tissue absorption. Other recognized causes for insulin resistance include (1) hyperactivity of the insulin antagonists, namely the pituitary and the adrenals, (2) disturbances in liver function, (3) infection, (4) excessive destruction of the insulin producing apparatus, as in carcinoma of the pancreas, (5) allergic states, particularly with widespread disturbance in the carbohydrate storage of the skin and the production of specific insulin antibodies, (6) hypermetabolism associated with hyperthyroidism, and (7) acidosis. Nevertheless, in patients who have insulin resistance requiring large doses of insulin, remarkable changes in the rate of absorption of insulin do some-

8. Depisch, F.: Über lokale Lipodystrophie bei lange Zeit mit Insulin behandelten Fällen von Diabetes, Klin. Wchnschr. **5**: 1965-1966 (Oct. 15) 1926.

9. Marble, Alexander, and Smith, R. M.: Atrophy of Subcutaneous Fat Following Injections of Insulin, Proc. Am. Diabetes Assoc. **2**: 173 (June) 1942.

10. Rowe, A. H., and Garrison, O. H.: Lipodystrophy; Atrophy and Tumefaction of Subcutaneous Tissue Due to Insulin Injections, J. A. M. A. **99**: 16-18 (July 2) 1932.

times occur. The cause seems to be some metabolic or structural change in the tissues that receive the injections, but this change may also be present in other tissues such as the liver or muscles, to which insulin is conveyed by the blood. This investigation suggests the practicability of using some radioactive substance with human subjects in studying the absorption of other drugs injected subcutaneously, about which little is known at the present time.

TABLE 3.—*Clinical Summary of Ten Diabetic Patients Receiving Radioactive Insulin-4-Iodoazobenzene*

Case No.	Age, Years	Sex	Duration of Diabetes, Years	Body Weight, Pounds	Maximum Insulin Dose, Units	Present Daily Insulin Dose, Units: Crystalline	Present Daily Insulin Dose, Units: Protamine Zinc	Usual Daily Diet: Carbohydrate, Gm.	Usual Daily Diet: Protein, Gm.	Usual Daily Diet: Fat, Gm.	Complications
1	62	♀	20	118	2,100	650	...	170	100	90	Resistive
2	49	♂	4	169	190	70	100	150	90	109	Resistive
3	55	♂	11	137	372	160	...	182	82	93	Resistive
4	42	♀	7	124	630	120	...	180	80	125	Resistive, recovering
5	36	♀	2	96	54	10	30	164	90	106	Pad
6	17	♂	3	112	90	13	44	160	70	80	Pad, recovering
7	46	♂	5	167	35	..	35	175	94	111	Pad, recovering
8	23	♀	2	126	60	10	44	180	100	120	None (ordinary)
9	31	♂	0	146	60	20	34	178	91	110	None (ordinary)
10	29	♂	14	135	72	10	50	178	91	110	None (ordinary)

SUMMARY

1. The rate of absorption of 25 units of insulin-4-iodoazobenzene (one-third to one-half unit per kilogram) labeled with radioactive iodine and injected subcutaneously was measured for eight hours in 10 diabetic patients and 5 normal controls.

2. In the normal controls and the patients with uncomplicated diabetes, insulin absorption took place at an almost equal rate, which was rapid during the first two hours but became progressively slower.

3. Areas of induration or of pad formation caused pronounced retardation of insulin absorption. Yet, when such insulin pads had rapidly disappeared because of cessation of injection in the area, the tissues regained the power of rapid absorption of insulin.

4. Patients with idiopathic insulin resistance showed significant delay in insulin absorption. In such cases insulin produced a more definite effect on blood sugar and respiratory quotient when injected intravenously than when injected subcutaneously. During recovery from insulin resistance, the rate of absorption became normal.

5. In the normal controls and in all the diabetic patients except those with insulin resistance, the blood sugar declined after insulin injection. In the resistant patients, the blood sugar rose during the first two hours and had not reached normal levels at the sixth hour. Wide variations in the initial level of blood sugar did not of themselves affect the rate of insulin absorption.

6. The cause of delayed insulin absorption is not related to long duration of diabetes but is resident in the tissues at the site of injection and tends to be corrected by the continued use of insulin in amounts large enough to control glycosuria and hyperglycemia.

7. A comparison of the rates of insulin absorption from the standpoint of differences in the structure of the tissues used for injection, with particular reference to the disappearance of insulin pads and of areas of fatty atrophy, suggests the hypothesis that in cases of insulin resistance which is associated with pronounced delay in insulin absorption, the metabolic or structural changes in diabetic tissues take place under the influence of some factor such as a disturbance in hormonal and enzyme relationships.

APPENDIX

In table 3 are summarized the clinical data, including the usual diets and insulin dosage, of the 10 diabetic patients used in our study. They are classified under four headings: (1) insulin resistant patients (1 to 4), (2) a patient (5) with thick insulin pads 3 to 4 inches in diameter and fully 1 inch in depth, apparently fatty or fibrous in structure, (3) 2 patients (6 and 7) with areas of thin insulin pads typical of recovery from the effect of repeated insulin injection at the same site, and (4) 3 diabetic patients (8 to 10) of ordinary type without evidence of insulin resistance or changes in the subcutaneous tissue.

With all 4 of the insulin resistant patients, detailed metabolic studies were made, including measurements of the respiratory quotient and the gaseous exchange both under basal, postabsorptive conditions and after the administration of dextrose with and without ordinary crystalline insulin. In 3, insulin given subcutaneously had slight effect on the metabolism unless given in massive doses. Patient 4 showed that partial recovery from insulin resistance had occurred, and improvement in the response to insulin was found.

TABLE 4.—*Effects on the Respiratory Exchange of Insulin Given Subcutaneously and Intravenously in Case 1*

Date and Period of Test	Time, A. M.	R. Q.	O_2 per Min., Cc.	B. M. R., %
Sept. 1, 1942				
1	8:45	0.763	180	
2	8:55	0.756	188	
3	9:05	0.766	185	
Average	....	0.762	185	+7.2
	9:17-9:18, 50 Gm. dextrose by mouth			
	9:18, 400 units insulin subcutaneously			
4	10:15	0.768	204	
5	10:30	0.745	202	
6	10:45	0.745	198	
7	11:00	0.758	200	
8	11:15	0.756	211	
Sept. 10, 1942				
1	9:15	0.759	177	
2	9:25	0.788	171	
3	9:35	0.782	175	
Average	....	0.776	175	+2.3
	10:01-10:02, 50 Gm. dextrose by mouth			
	10:05, 200 units insulin intravenously			
4	11:00	0.756	197	
5	11:15	0.773	193	
6	11:30	0.796	206	
7	11:45	0.811	194	

The contrast between the effects of insulin given subcutaneously and by vein is shown for patient 1 in table 4. With this patient, after 400 units of insulin given subcutaneously and 50 Gm. of dextrose by mouth, no appreciable rise in the respiratory quotient was observed. However, after 200 units of insulin intravenously and 50 Gm. of dextrose by mouth, a slight

but significant rise in the quotient was observed. In all probability variations in structure occurred in different portions of the tissues used for insulin injection. On palpation, the subcutaneous tissue of this patient's abdomen felt distinctly inelastic, thickened, firm and rather fibrous. The same was true in certain portions of the thighs. Nevertheless there were certain areas where the tissue felt much more nearly normal. Indeed, on one occasion, when 300 units of insulin was given subcutaneously in another area and 50 Gm. of dextrose by mouth, a rise in respiratory quotient was obtained.

Clinical and x-ray studies of the pituitary of this patient were negative. Dr. Francis Lowell found in her blood some anti-insulin substances in low concentration. An attempt to use human insulin, on the basis that her resistance to insulin might be due to

TABLE 5.—*Effects on Respiratory Exchange and Blood Sugar of Insulin Given Subcutaneously and Intravenously in Case 2*

Date and Period of Test	Time, A. M.	R. Q.	O_2 per Min., Cc.	B. M. R., %	Blood Sugar, Mg.
Nov. 23, 1940					
1	8:35	0.686	229		
2	8:45	0.707	224		
3	8:55	0.715	222		
Average	....	0.703	225	+7.2	320
	9:09, 100 units insulin subcutaneously				
	9:19-9:43, 50 Gm. dextrose intravenously				
4	10:05	0.692	226		
5	10:20	0.704	226		
6	10:35	0.723	218		
7	10:50	0.755	217		
8	11:05	0.675	237		
	11:23	.....	...	.....	380
Nov. 26, 1940					
	8:34	.....	...	.....	270
	8:35, 150 units insulin intravenously				
1	9:00	0.729	227		
2	9:10	0.753	230		
3	9:20	0.778	227		
Average	....	0.753	228	+6.7	
	9:32-10:02, 50 Gm. dextrose intravenously				
4	10:15	0.833	233		
5	10:30	0.833	227		
6	10:45	0.835	227		
7	11:00	0.820	231		
8	11:15	0.806	230		
	11:30	.....	...	.....	130

a species effect, was unsuccessful. Her diabetes had been mild for eighteen years, when insulin treatment was begun in February 1940. Then she required only 30 units daily. The phase of insulin resistance appeared in November 1941. Her insulin requirement gradually increased until in the period from December 1941 to August 1942 she took from 1,400 to 2,100 units daily. The dose had been reduced during the intervening weeks to 650 units daily.

In case 2 the effects of 50 Gm. of dextrose given intravenously on two different occasions are compared, first, when 100 units of crystalline insulin was given subcutaneously and, second, when 150 units was given intravenously. Only a slight rise in respiratory quotient (table 5) and no decline in blood sugar followed the subcutaneous injection, whereas with the intravenous injection a rapid rise in respiratory quotient and a fall in blood sugar occurred. The difference in results is too great to be explained by the difference in insulin dosage.

CESAREAN SECTION UNDER CONTINUOUS CAUDAL ANALGESIA

A PRELIMINARY REPORT

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AND
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We recognize and accept the fact that the introduction of any new drug or method of treatment is usually followed by repercussions from many sources. This is particularly true if the public is informed prematurely. Unfortunately, this has happened with the introduction of continuous caudal analgesia by Drs. Hingson and Edwards [1] of the United States Public Health Service. It is not our purpose to discuss the history, use or dangers of caudal block or to compare the various methods of technic, but to endorse this new procedure as the nearest thing to safe and painless childbirth that we have in our obstetric armamentarium. After reading a report of 10,000 cases of childbirth compiled by Hingson and Edwards, and from our personal observation in 950 deliveries by this technic, we agree with the originators of this method and with other writers that it is a procedure which should be used only in a well staffed obstetric service by competent specially trained individuals. We feel sure that continuous caudal analgesia will have a definite place among the analgesic agents used in obstetric practice.

The staff of the Philadelphia Lying-in Hospital considers it a distinct pleasure to have been of assistance to Hingson and Edwards in the development of this method. We attribute the high percentage of our successful cases to the fact that the originators have been with us during most of the trial period and we have had the benefit of their advice in handling these patients.

Realizing that any new procedure has to be tried slowly and carefully, we have endeavored to surround our patients with every possible safeguard, and now after a year's experience without any maternal or fetal death attributed to its use we feel we are in a position to give continuous caudal analgesia our endorsement.

When cesarean section is indicated, three things are of paramount importance: first, the time to do the operation; second, the type of operation to be performed; and, third, the anesthetic agent to be used.

The ill effects of various drugs and inhalation anesthesia on the unborn child have long been recognized. Because of the dangers associated with one dose spinal anesthesia for cesarean section, this method was discontinued in all but a few clinics and for some years a local anesthetic agent has been looked on as the safest for mother and child. Our experience with local anesthesia for cesarean section has been most satisfactory, but not every patient is suitable for this type of anesthesia, and not all surgeons have the necessary tranquillity to use it. The introduction of continuous or fractional spinal anesthesia by Lemmon and the use of smaller doses of less toxic drugs brought about a revival of this type of anesthetic in our section cases and for the past two and a half years we have used a general anesthetic only occasionally. Our results from one dose caudal analgesia were not particularly gratifying,

1. Hingson, Robert A., and Edwards, Waldo B.: Continuous Caudal Analgesia in Obstetrics, J. A. M. A. **121**: 225-229 (Jan. 23) 1943.

although Lahmann and Mietus[2] report satisfactory results in all but 3 of 48 cases. In 2 of the cases the caudal block wore off before the operation was completed and the closure of the abdomen was completed after pentothal sodium was administered intravenously. In another instance analgesia resulted, but the anesthesia on the anterior abdominal wall failed to rise sufficiently high to permit an adequate incision. This patient's block was complemented by nitrous oxide anesthesia. They reported no maternal deaths, and the three fetal deaths could not be attributed to the technic or type of anesthetic. They, as all writers on this subject, call attention to the necessity of having the patient surrounded by safety measures and conclude that caudal anesthesia is well suited for cesarean section. After observing the results of continuous caudal anesthesia in several hundred vaginal deliveries, we extended its use for immediate puerperal sterilization. Our results were satisfactory. Following this we have attempted to evaluate its use for cesarean section and herewith is a report on our observation in 50 cases. Twenty-nine of the patients were operated on at the Philadelphia Lying-in Hospital, 3 at the Jefferson Medical College Hospital and 2 at the Philadelphia General Hospital. We are indebted for the addition of 12 cases managed by Hingson and Edwards at the Marine Hospital, Staten Island, and the report of 4 patients operated on by Dr. John C. Hirst at the Preston Retreat, to be included in this series.

In our series the indications for operation were as shown in table 1.

Mental reassurance should be included in the usual preoperative preparation of a patient who is going to be conscious during a surgical procedure. The type of anesthesia to be used is never discussed until the patient has been hospitalized, when the operation is elective; that is, the decision to perform cesarean section is made prior to the onset of labor because of clearcut indications. If the anesthesia is discussed previous to admission, the patient is sure to discuss it with a friend, who supposedly has heard of a patient whose anesthetic wore off before the operation was completed or who died from the use of a spinal injection. It will take some time to educate the public to the value of continuous spinal and caudal methods of anesthesia, and although we have had no patient who has absolutely refused it, several have been very doubtful about taking it. An interesting point is that each of the patients who protested mildly against its use were most enthusiastic on completion of the operation. For example, one patient who had had a previous cesarean section under gas-ether sequence told us that the day after her second cesarean section, which was under continuous caudal anesthesia, she felt as good as she did on the fifth day after her first operation.

In addition to the mental preparation of the patient, it is advisable to prepare the family for the length of time the patient is required to remain in the operating theater. It is essential that the operation not be started until the anesthesia is complete; and, in order that the family may not be unduly worried, it should be acquainted with this necessary delay.

Quiet in the operating room is most important, as the dropping of instruments and pans, or loud talking, disturbs the patient. An indispensable part of the operating team is the anesthetist, who remains at the head of the table and reassures the patient while carrying on a low toned conversation with her at least until the baby is delivered. All fear usually leaves the patient immediately after she hears the baby cry, and the operation is completed in an entirely different atmosphere.

The contraindications for using continuous caudal analgesia are:

1. Gross deformities of the spine, particularly of the sacrum.
2. Tumors which narrow the spinal canal.
3. Local infection around the sacral hiatus.
4. Skin infections such as boils or carbuncles anywhere on the body (a contraindication to be evaluated by the physician in charge).
5. History of sensitivity to the analgesic agent.
6. Profound anemia, unless supplemented with oxygen inhalation.

We have hesitated to use this technic in cases of placenta previa because of the relaxation of the cervix and the possibility of bleeding. This is particularly true if the patient has had any uterine contractions.

In addition, caudal analgesia is seldom satisfactory in hysterical patients, and some women do not like it because their fear of childbirth is such that they dread being conscious during the process.

TABLE 1.—*Indications for Operation*

Disproportion, twin pregnancy, toxemia	1
Disproportion, preeclamptic toxemia	1
Disproportion, previous section	3
Disproportion, pulmonary tuberculosis	1
Disproportion (cephalopelvic)	21
Diabetes	2
Eclampsia	1
Preeclampsia	3
Multiple uterine fibroids	2
Previous hysterotomy	1
Rheumatic heart disease	1
Heart disease	6
Previous difficult delivery	2
Uterine inertia	1
Epilepsy	1
Severe contractile burn scar of perineum	1
Advanced pulmonary tuberculosis	2

Adequate fluids should be administered preceding the operation, especially in hot weather. One of the barbiturates should be given the previous night and 1½ grains (0.1 Gm.) should be given one hour before operation. Fifty mg. of ephedrine hydrochloride should be given intramuscularly or in the initial solution if the patient's blood pressure is below 140 mm. systolic. In hypertensive cases the ephedrine should be withheld unless the blood pressure falls to 100 mm. systolic.

TECHNIC

The technic of administering the caudal analgesia in cesarean sections is outlined as follows:

1. The patient is given 1½ grains (0.1 Gm.) of a barbiturate one hour before operation, having been given sedation the previous night.
2. One and five-tenths per cent metycaine in 125 cc. of isotonic solution of sodium chloride or isotonic solution of three chlorides is prepared and 50 mg. ephedrine hydrochloride is given intramuscularly at the time of the first injection.
3. The continuous caudal needle is inserted and the apparatus adjusted as for obstetric analgesia.
4. An initial test dose of 8 cc. is administered with careful check by aspiration to prove that the needle is not within the subarachnoid space or a blood vessel.
5. A supplementary dose of 40 to 60 cc., depending on the size of the patient, is then administered. The patient is then placed on her back and the level of analgesia is tested in twenty minutes.

2. Lahmann, Albert H., and Mietus, A. C.: Caudal Anesthesia for Cesarean Section, Am. J. Obst. & Gynec. **46**: 274-278 (Aug.) 1943.

6. If the level of analgesia has not gone above the umbilicus on both sides, a supplementary third injection of 20 to 40 cc., according to the need of the patient, is administered.

7. When the level of analgesia is complete on both sides to the height of the eighth dorsal segment, the operation may be begun. This is usually about thirty minutes after the first injection. In debilitated patients seriously ill with tuberculosis or heart disease, the procedure should be instituted forty-five minutes to one hour before operation and the level of analgesia developed more slowly.

The time required for the analgesic agent to work satisfactorily varies and, if one is to use this method, the operation should never be started before the level of analgesia is correct and repeated injections should not be given with the idea of shortening the length of time before the operation is started. In our series the minimum time before starting the operation was ten minutes, the maximum time one hour twenty minutes and the average time, thirty-four minutes.

In all of our cases but 1 we have used the malleable needle. In the 1 case the ureteral catheter technic was carried out. Since the development of this new malleable needle we have not feared breakage and have had no such accident occur.

There have been several reports of excessive drop in blood pressure when caudal analgesia is used. The average drop in our series, with the exception of 2 patients, was 26 mm. The only patient who had a severe drop of blood pressure was having her second cesarean section. The first cesarean was done four years previously, at which time she had a circulatory collapse at the onset of the operation, which was being done under nitrous oxide-oxygen anesthesia. This patient was an unstable individual with definite glandular imbalance and pronounced instability of her nervous system. She was extremely apprehensive, and because of the circumstances occurring at the time of her first cesarean section we thought that the use of the caudal technic would prevent a recurrence. Identically the same thing happened, however, after we had given only 30 cc. of metycaine, in spite of the fact that she had been given ephedrine. Plasma and other stimulants were ready and were given. The operation was continued in spite of the fact that her blood pressure had not become stabilized. It has been our experience that immediately after the delivery of the child the blood pressure regains its normal level. This has been found to be true in practically every case, and in this instance there was an immediate rise of 60 mm. of pressure within a minute after the child was removed from the uterus. We have not been able to explain this phenomenon to our own satisfaction, but it is an important observation and should be remembered when there is fear of proceeding with the operation because of an unusual drop in blood pressure. None of our cases showed any postoperative blood pressure abnormality.

Recovery of all our patients has been extremely satisfactory, and the amount of postoperative discomfort has been minimal. In no instance was catheterization necessary beyond what is usually necessary following cesarean section. Morbidity occurred in 1 patient who had been in labor with ruptured membranes and who suffered from a mild endometritis after operation. However, her eventual recovery was satisfactory. Morbidity in another was due to pyelitis, which appeared on the seventh postoperative day. No patient complained of backache or unusual pains in the lower extremities. There were no maternal deaths in our series.

In 48 cases perfect analgesia was obtained. The other 2 included in this series were failures because of inability to insert the needle in 1 case and failure of fusion of the sacrum in the other. These 2 cases demonstrate the fact that it is not possible to give every patient caudal analgesia.

Metycaine was used in all these cases. The minimum amount necessary was 30 cc., the maximum 320 cc., with an average of 81.8 cc.

The minimum duration of the operation was fifteen minutes, the maximum seventy-five minutes and the average, thirty-eight minutes. There is no necessity to hasten the performance of a cesarean section under this procedure because with the needle still in place repeated injections can be given as required. The important thing to remember is to repeat the injection at the slightest evidence of loss of good analgesia.

We do not perform a routine type of cesarean section. The low classic operation has given us very satisfactory results for women who have not been in labor, who have not been examined and whose membranes have not ruptured. The low segment operation is performed when the patient has been in labor, has been examined or has ruptured membranes. If there is any suspicion of potential infection, the Waters modification of the Latsko operation is the procedure of choice. In our series types of operation performed are given in table 2.

TABLE 2.—*Types of Operation*

Low classic and sterilization	11
Low classic	27
Low segment operation	7
Low classic, myomectomy	1
Low classic, salpingectomy	1
Waters modification of Latsko	3

The extraction of the child is accomplished without pain, but care should be taken not to manipulate the uterus before the incision is made. In 1 of our cases in which the uterus was in dextrorotation and necessitated replacement before incision of the anterior wall the uterus contracted so vigorously that difficulty was experienced with extraction of the child. All babies cried lustily immediately after delivery and none needed resuscitation. All babies except 1 were discharged from the hospital in good condition. One baby was delivered of a seriously toxic mother at five and one-half months and succumbed within eight hours after birth. We do not consider this fetal death attributable to the analgesic agent. Had any other analgesia been used the child probably would not have breathed at all.

The average estimated blood loss in all these cases was 100 cc. In both vaginal and abdominal deliveries under caudal analgesia we have been impressed by the definite decrease in loss of blood. For several years we have been giving one of the ergot or posterior pituitary preparations intravenously in all cesarean sections immediately after extraction of the child. This routine was carried out in the first few of these cases under caudal analgesia but was discontinued when it was found to be unnecessary. However, we do give these preparations intramuscularly as a routine procedure.

The patients are greatly benefited by the administration of morphine and scopolamine immediately after abdominal section or vaginal delivery. This medication relieves the discomfort associated with episiotomy when the analgesic effect has been exhausted.

COMMENT

For some time we have been endeavoring to evaluate various anesthetic and analgesic methods, particularly in cesarean section. Although a definite conclusion cannot be reached after studying a series of only 50 cases, we feel from our observation of this method that it is superior to any other that we have tried. Because of the excellent results in both vaginal delivery and cesarean section, we believe that this method of relieving pain is perfectly safe when given by a trained person in a well equipped maternity department. We have been particularly impressed by the absence of nausea, the complete relaxation of the abdominal wall, the smooth convalescence of the mother with the absence of discomfort after operation and the fact that no baby in this series required resuscitation.

The enthusiasm with which those patients who have had previous sections under inhalation anesthesia accept this new method is very gratifying to us, and the family's reaction is quite different when the patient is returned to her room in a cheerful, wide awake condition.

Although the average person takes this type of analgesia well, it is especially beneficial in cardiac cases, toxemias and upper respiratory infections.

We would like to call attention to the following observations: First, should there be a drop of blood pressure, it returns to normal immediately after delivery of the child; second, perfect analgesia must be obtained before the operation is started; third, the level of analgesia must be maintained throughout the entire procedure.

Our results have been so satisfactory that we feel justified in continuing the use of continuous caudal analgesia until a larger series has been observed.[3]

SUMMARY

Of 50 patients operated on under continuous caudal analgesia, 48 had perfect results and 2 were failures because of inability to introduce the analgesic agent.

All mothers recovered. There were 2 cases of morbidity not attributable to the use of this method.

Forty-nine babies were discharged from the hospital. One baby born at five and one-half months' gestation died.

Two patients had a drop of blood pressure beyond the average of 26 millimeters.

807 Spruce Street.

3. Since this article was written, our series has increased to 67 cases. Results in the last 17 cases were as satisfactory as in the preceding 50.

Clinical Observations on Itching.—It is obvious from experiments performed early in this century that itching is somehow related to cutaneous pain. In pathological cases of sensory dissociation, in local anesthesia and in asphyxial nerve block the perception of itching disappears and reappears with the pain perception. Complete analgesia is always connected with loss of itching sensitivity, and in cases of complete tactile anesthesia with unimpaired pain sense the itching sensitivity is unimpaired too. Also it has been shown that itching is independent of the temperature senses. Special points in the skin surface responding with itching alone to any stimulus could not be detected, but it was found that pain and itching points have the same density and that they cover each other. The interpretation of all these results was that itching is mediated by pain receptors and pain fibers.—Rothman, Stephen: The Nature of Itching, Research Publications, Association for Research in Nervous and Mental Disease, Baltimore, Williams & Wilkins Company, 1943.

Clinical Notes, Suggestions and New Instruments

IDENTIFICATION OF INFLUENZA VIRUS TYPE A IN CURRENT OUTBREAK OF RESPIRATORY DISEASE

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Under the direction of the Influenza Commission of the Board for the Investigation and Control of Influenza and other Epidemic Diseases in the United States Army, observation posts have been set up in various parts of the country for early detection of influenza in Army personnel.

In the Virus Laboratory of the University of Michigan School of Public Health, such observations have been carried out for more than a year. On May 28, 1943 in the course of one of many routine surveys, several patients ill with influenza were seen at the Station Hospital, Fort Custer, Michigan. A strain of influenza virus, type A (Weiss), was isolated from the throat washings of 1 of these men, and in 2 other cases positive serologic evidence of type A infection was obtained. Since no epidemic prevalence of influenza or other respiratory disease was noted at that time and the usual seasonal decline followed, it appeared that type A influenza virus could be the cause of sporadic disease.

From the middle of October 1943 the Army Specialized Training Program Unit at the University of Michigan was under constant detailed observation for respiratory disease. On Nov. 17 and 18, 1943 several cases resembling mild influenza appeared at sick call. On November 18 throat washings from 4 of these were inoculated intranasally into ferrets and mice. In 2 instances the ferrets responded, after an incubation period of forty-eight hours, with sharp febrile reactions and nasal signs resembling those usually seen in infection with influenza A. Material from these ferrets obtained at autopsy on the third day was inoculated into the chorioallantoic sac of chick embryos, some given intranasally to mice and some passed to additional ferrets. Eggs of the first passage of one revealed the presence of red cell agglutination[1] in the allantoic fluid. Type A influenza virus was identified by the agglutinin inhibition reaction. Type A virus was also identified in eggs inoculated intra-allantoically with material from the second ferret passage of the other throat washing.

Mice of the third passage of those inoculated with the original throat washings from 1 patient developed pulmonary lesions due to influenza A virus. Influenza A virus was established in mice inoculated with material from the second ferret passage of the throat washings from the second patient. Mice inoculated with throat washings of these 2 patients were immune to the PR8[2] and Weiss (May 1943) strains of influenza virus type A when tested fourteen days later with 10 to 100 lethal doses intranasally. They were not immune to the Lee strain[3] of influenza type B. Ferrets allowed to recover from inoculation developed antibodies to type A virus. Study of the acute and convalescent serums of the patients revealed a sharp rise in antibodies to type A virus but not to type B.

The same procedures carried out with the other 2 specimens from clinically similar cases failed to yield any evidence of the presence of influenza A or B. Studies of antibody titers of acute and convalescent serums from additional cases of influenza-like respiratory disease occurring during the first few days of the outbreak have revealed that a definite proportion of illness was not due to influenza A or B.

The present report serves to detail the detection of influenza virus type A at the onset of an epidemic in a Middle Western post before the disease was known to be present in other parts of the country.

From the Department of Epidemiology and the Virus Laboratory, University of Michigan School of Public Health.

These investigations were aided through the Commission on Influenza, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, Preventive Medicine Division, Office of the Surgeon General, United States Army.

This study was also aided by a grant from the International Health Division of the Rockefeller Foundation.

1. Hirst, G. K.: Science **94:** 22 (July 4) 1941.
2. Francis, Thomas, Jr.: Science **80:** 457 (Nov. 16) 1934.
3. Francis, Thomas, Jr.: Science **92:** 405 (Nov. 1) 1940.

Special Article

DANGERS OF METHYL CHLORIDE AS SUBSTITUTE FOR FREON

A STATEMENT BY THE ASSOCIATION'S COMMITTEE TO STUDY AIR CONDITIONING

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BOSTON
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Chairman of the Committee
DETROIT

Freon (dichlorodifluoromethane), long used as the refrigerant of choice in some types of air conditioning and refrigeration, has become little available through military requirements. This substance is now largely preempted for use as a disperser for one or more insecticides. This gas is almost wholly free of toxic properties, as a result of which engineers, servicemen, physicians and hygienists have become decreasingly aware of earlier disastrous events associated with more dangerous forms of refrigerants.

The mechanism earlier used with Freon does not lend itself to the ready substitution of any and all other refrigerants without extensive alterations. In fact, about the only other refrigerant that may be used in the same mechanism is methyl chloride (CH_3Cl). Even this refrigerant requires some adaptation, such as involves valve changes and the elimination of aluminum and certain other less common metal parts. In contact with aluminum, methyl chloride forms aluminum trimethyl. Practical requirements are leading to the widespread substitution of methyl chloride for Freon, and many governmental specifications call for the use of methyl chloride for air conditioning and refrigeration purposes.

This gas is both toxic and, under some circumstances, explosive. Its general properties are set forth in *Chemical and Engineering News*.[1] Its toxic properties are well described in the article "Methyl Chloride Poisoning from Domestic Refrigerators" by McNally, Kegel and Pope.[2] Publications now available imply a relative lack of injurious properties of methyl chloride, and in some the statement appears that the toxic threshold for short periods of exposure begins only at such relatively high concentrations as 750 parts per million. To the contrary there exist unpublished data that apparently prove that at least among animals injury may begin with more dilute concentrations and on the order of 100 or 200 parts per million. For sustained exposures it may develop that concentrations higher than 50 parts per million are undesirable. Heretofore emphasis has been placed on acute poisoning with scant reference to chronic states. It is now believed that repeated exposures at intervals such as one week apart may lead to cumulative damage. Already over the country a few minor disasters have occurred, chiefly connected with explosions.

In a recent engineering publication[3] a summary of precautions has been published, chiefly connected with the processes involved in the change over from Freon to methyl chloride. A few of them there appearing are here shown:

Methyl chloride is toxic and inflammable.

Do not use methyl chloride in systems where it will come in contact with aluminum or zinc.

Test the system for leaks BEFORE charging with methyl chloride.

Do NOT use a halide torch when testing for leaks AFTER the system has been filled with methyl chloride.

Increase superheat setting of "Freon"-charged thermal expansion valves to maximum. (New orifice may also be needed to reduce capacity of valve.)

Install dryer in liquid line.

It is not the purpose of this concise statement to condemn the use of methyl chloride. Instead it is desired merely to indicate that the number of instances of methyl chloride poisoning may increase, and that physicians caring for patients employed about air conditioning or refrigeration enterprises should be alert to the emergencies, acute and chronic states that may be induced by methyl chloride under conditions not always certain to attract the attention of the work of patients themselves.

1. Chem. & Engin. News **21**: 1254 (Aug. 10) 1943.
2. Kegel, A. H.; McNally, W. D., and Pope, A. S.: Methyl Chloride Poisoning from Domestic Refrigerators, J. A. M. A. **93**: 353 (Aug. 3) 1929.
3. Heating, Piping & Air Conditioning **15**: 521 (Oct.) 1943.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

SONOTONE AUDIOMETER, MODEL 20, SERIAL NO. 573, ACCEPTABLE

Manufacturer: The Sonotone Corporation, Elmsford, N. Y.

The Sonotone Audiometer, Model 20, is designed to measure the acuity and range of hearing. In the Council's investigation of the instrument, the audiometer was calibrated to determine whether it complied with the minimum requirements for acceptable audiometers of the Council on Physical Therapy.[1]

All measurements were made with a 115 volt alternating current, 60 cycle power supply. The acoustical output of the air conduction receiver was measured on a coupler at the audiometer frequencies 128, 256, 512, 1,024, 2,048, 4,096 and 8,192 cycles only.

The instrument is equipped for testing with air and bone conduction. The frequency of the test tones remains within ± 5 per cent of the designated value under the manufacturer's indicated operating conditions. Dials are marked so that frequencies may be identified readily.

Each indicated attenuator level produces a sound pressure which is within ± 5 decibels of the value referred to normal threshold. The normal threshold is that determined in the National Health Survey Hearing Study. Each attenuator step is 5 ± 1.5 decibels.

Range of intensity (air conduction only): The intensity range of the test tones above the normal threshold is at least that as follows:

Test Tone Cycles per Second	Intensity Range Decibels
128	60
256	80
512	85
1,024	90
2,048	90
4,096	90
8,192	70

The sound pressure amplitude of the harmonics in the output of the air conduction receiver does not exceed 3 per cent of the amplitude of the corresponding fundamental frequency.

The frequency dial is calibrated in the traditional octave scale (128, 256, 512, 1,024, 2,048, 4,096, 8,192) and also in the closely equivalent scale (125, 250, 500, 1,000, 2,000 and so on) for easy

1. Minimum Requirements for Acceptable Audiometers. J. A. M. A. **120**: 838 (Nov. 14) 1942.

interpolation when exploring by sweep methods. The nature of the electrical circuit is such that the frequency is stable, and no zero adjustment of the frequency dial is required.

The air conduction receiver is of the dynamic type, and both the air and bone receivers are especially designed for audiometric purposes.

A masking circuit and receiver are included with separate controls. The masking spectrum is sufficiently broad to provide effective masking at all the audiometer frequencies.

A signal button on a cord is provided for the person who is being tested. An interrupter that introduces no extraneous identifying sounds permits easy determination of threshold values.

A control on the panel allows the audiometer to be set for bone or for air conduction testing. The instrument is inoperative if the air conduction receiver is plugged in while the instrument is set for bone conduction or vice versa. As the control is changed from one of these test positions to the other, a shifting window selects the correct hearing loss values to be read. Receiver plugs are of different types so that the bone, air and masking receivers can be connected only to the proper terminals.

The Council on Physical Therapy voted to accept the Sonotone Audiometer, Model 20, for inclusion in its list of accepted devices, since the instrument was found to comply with the Council's minimum requirements for acceptable audiometers.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS WATCHED CLOSELY THE TREATMENT OF THE MENINGITIDES. BECAUSE OF THE DIFFERENCES IN OPINION OF THE VALUE OF ANTIMENINGOCOCCIC SERUM AND MENINGOCOCCUS ANTITOXIN, IT WAS DECIDED TO PREPARE A STATUS REPORT. ACCORDINGLY, DR. HOBART A. REIMANN WAS APPROACHED FOR ASSISTANCE IN PREPARING SUCH A REVIEW. LETTERS WERE DIRECTED TO TWELVE PERSONS (NOT INCLUDING DR. REIMANN) IN CIVILIAN PRACTICE AND THE ARMED FORCES TO ASCERTAIN THEIR EXPERIENCE. THE FOLLOWING STATEMENT REPRESENTS THE CONSENSUS, AND ITS PUBLICATION HAS BEEN AUTHORIZED BY THE COUNCIL, WHICH WISHES TO EXPRESS ITS APPRECIATION OF THE EFFORTS OF DR. REIMANN AND THE OTHERS WHO AIDED IN THE SURVEY.

AUSTIN E. SMITH, M.D., Secretary.

STATUS OF ANTIMENINGOCOCCIC SERUM AND MENINGOCOCCUS ANTITOXIN

All authorities are agreed on the value of sulfonamide chemotherapy in the treatment of meningitis and septicemia due to the meningococcus organism. Mortality rates in the hands of some physicians have been less than 5 per cent with chemotherapy, and these workers do not believe that antimeningococcic serum given in addition to chemotherapy is of any value; in fact, some suggest that serum may at times even be harmful and contraindicated. The chief disadvantages of serum are its bulkiness, expense, perishability, the complexities of its administration and the frequency of prolonged convalescence from serum sickness.

Many clinicians feel that at present serum should be used only for (*a*) patients who are sensitive to sulfonamide compounds and (*b*) patients in whom the meningococcus is or becomes drug resistant. The former criterion (*a*) is of course valid, but it is an uncommon occurrence; the latter (*b*) apparently is rarer. According to one worker there is little evidence to indicate that drug resistant meningococci have been encountered in meningitis. Another reports only 1 case out of 2,000 in which the meningococcus seemed to be resistant to sulfadiazine. Several have suggested that serum, in addition to sulfonamides, might be of value in the rare cases of fulminating infection if no specific antibodies can be demonstrated in the patient's serum, but death often occurs before the diagnosis is made, before the meningococcus is classified, before antibodies can be studied or before serum is obtainable or administered. Perhaps antimeningococcic serum should be retained for use in cases in which sulfonamides cannot be used, but instead of using the serum customarily prepared in horses, refined, monovalent concentrated rabbit serum is preferable. In experimental studies, rabbit serum was found to be ten times as potent as horse serum and is far more easily prepared.

Meningococcic Antitoxic Serum.—As regards Meningococcic Antitoxic Serum, several authorities do not recommend its use. Others feel that there is no evidence that an exotoxin is made by the meningococcus but that endotoxins may be operative. It is universally believed that endotoxins are poor antigens. In cases in which antitoxin seemed to be helpful, it is believed that the antibacterial agents present in the preparation, not the antitoxin, were responsible. Two consultants alone feel that antitoxin might be of value in the severe fulminating case to neutralize quickly the hypothetical toxin.

Penicillin.—There may be no need at all for antibacterial serum if penicillin proves to be successful in treatment, either in replacing the sulfonamides entirely, which is unlikely, or for use in sulfonamide sensitive patients or for sulfonamide resistant meningococci. One investigator already reports success in this direction.

COMMENT

It is the consensus that sulfonamide therapy (sulfadiazine) is at present the method of choice in the treatment of meningococcic meningitis and septicemia. For the few patients who are sensitive to sulfonamides and for the still rarer instances of infection with sulfonamide resistant meningococci, the available potent, type specific horse antimeningococcic serum alone should be used intravenously, never intrathecally, in adequate dosage with promptness and precision. But because of the instances in which sulfonamides cannot be used with success there is no justification for the continued widespread manufacture, distribution and stocking of serum. A limited supply available at conveniently placed centers for prompt distribution would seem to be adequate. If proved by clinical trial to be as superior to horse serum as experiments now indicate, the use of concentrated, refined, monovalent serum prepared in rabbits should preferably be used, intravenously, never intrathecally.

There is no evidence to prove that combined chemoserotherapy is superior to chemotherapy alone and no firm evidence to support the use of the meningococcic antitoxic serum which is now available. Further studies are needed to determine whether an endotoxin or exotoxin plays a role in the infection and whether a potent antitoxin can be made for successful use in fulminating cases.

Should penicillin prove to be successful in curing meningococcic meningitis and/or septicemia in patients who are sulfonamide sensitive or in whom the meningococci are or become sulfonamide resistant, there will be no further need for the use of antimeningococcic serum.

SUMMARY

Consideration of the available evidence revealed that few seem to be much concerned with the use of serum and that only in exceptional cases. It is also noted that the serum suggested (rabbit serum) is one which has never been submitted to the Council or, as far as is known, used clinically. Accordingly, the Council voted to omit Antimeningococcic Serum and Meningococcus Antitoxin from New and Nonofficial Remedies, the accepted preparations to be omitted at the end of the longest period of acceptance for any of these products.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

AUSTIN E. SMITH, M.D., Secretary.

SULFAPYRIDINE (See New and Nonofficial Remedies, 1943, p. 179).

The following dosage form has been accepted:

WILLIAM R. WARNER & CO., INC., NEW YORK

Tablets Sulfapyridine: 0.5 Gm.

SULFATHIAZOLE (See New and Nonofficial Remedies, 1943, p. 182).

The following dosage form has been accepted:

WILLIAM R. WARNER & CO., INC., NEW YORK

Tablets Sulfathiazole: 0.5 Gm.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 8, 1944

AMERICAN MEDICAL ASSOCIATION HOLDS ANNUAL SESSION IN 1944

Announcement has been made officially that the American Medical Asociation will hold its 1944 annual session June 12-16 in Chicago. The House of Delegates will meet in the Palmer House, where the Scientific Exhibit and the Opening General Meeting will also be held. The Registration Bureau and the Technical Exhibits will be in the Hotel Stevens, and the meetings of the various sections will be assigned to these hotels and in addition to the Hotel Sherman and the Morrison Hotel.

A prospective feature of the annual session is a national medical war meeting at which there will be present distinguished representatives of the medical military services of the United Nations as well as other eminent speakers. The program and the place of this and other meetings will be announced as plans are completed. At the Conference of Section Secretaries with the Council on Scientific Assembly held in the headquarters of the American Medical Association in December, consideration was given particularly to salient features of the scientific programs. Plans were made for many round table and panel discussions and for symposiums on subjects of current interest, including such topics as the amino acids and the vitamins in nutrition, the dysenteries, postwar trends in obstetrics, industrial ophthalmology, new advances relating to the uses of penicillin and the sulfonamides, head injuries, asphyxia, the neuroses, fatigue, nutrition and rehabilitation, new aspects of endocrinology and urology, malaria and other tropical diseases, blood transfusion and new advances with blood and blood substitutes. A special section will be devoted to the interests of the general practitioner, and section officers have been appointed to work out a program designed particularly for this group. Already the applications for places on the program are sufficient to indicate the usual assembling of scientific discussions enhanced by new methods of presentation and exhibition.

Since the transportation and hotel facilities of Chicago are likely to be taxed to the utmost under war conditions, those who plan to attend the annual session should make the necessary reservations just as soon as the official announcement appears in the Organization Section of THE JOURNAL and in the advertising pages in the near future.

HIGH ALTITUDE FROSTBITE

Davis and his associates [1] call attention to some particular features of the frostbite incurred by airmen which differ from the features of frostbite incurred by ground forces during severe winter weather and from those of the frostbite of the immersion foot of shipwrecked seamen. Among the factors which contribute to the peculiarities of high altitude frostbite are the extreme degrees of cold encountered, such as minus 40 to 50 C., and the varying degrees of existing anoxemia and ischemia. Particularly noteworthy is the predilection of high altitude frostbite for the extremities, whereas the face and other exposed portions of the body are not affected. The great difference in cold tolerance between the tissues of the cheek and the fingers cannot be explained satisfactorily on the basis of the greater heat radiating surface of the fingers. Whereas the heat radiating surface per tissue mass in the fingers is three to four times greater than that in the cheek, the susceptibility to cold is fifty to one hundred times as great. Localized anoxemia resulting from the ischemia produced by intense reflex vasospasm of peripheral arterioles is probably the most important factor in establishing the peculiarly selective effect of cold on the digits of both upper and lower extremities. Exposure of one to two minutes suffices to render the fingers painfully cold, numb, stiff, waxy white in appearance and completely insensitive to touch. They feel hard and even brittle and cannot be flexed or extended voluntarily. The surface temperatures, as recorded by thermocouples, may be 4 to 6 degrees centigrade colder than the corresponding fingers of the unaffected hand. Capillary microscopy of the affected fingers in this early stage shows no blood in the terminal capillaries on the dorsum of the fingers about the nail beds. This would appear to be the result of an initial intense vasomotor spasm of the terminal portions of the arterioles and, in some instances, of a secondary thrombosis at the point where the arteriole passes into the capillary. The clinical types vary from mild to severe forms, the latter being described either as wet or as dry. The wet form is characterized by vesicles and dropsical blisters, the superficial layers of the skin becoming dissected away from the deeper layers by extravasated fluid. When

1. Davis, Loyal; Scarff, John E.; Rogers, Neil, and Dickinson, Meredith: High Altitude Frostbite: Preliminary Report, Surg., Gynec. & Obst. 77: 561 (Dec.) 1943.

this skin dries and hardens it is cast off, frequently in the form of a complete cast of the part. The dry type of high altitude frostbite cannot be differentiated in the early stage from the wet. However, it progresses to characteristic gangrene. The tissues shrivel and mummify and eventually become hard and coal black.

The basic morphologic lesion in high altitude frostbite, according to the authors, consists in damage by cold to the endothelium of the terminal capillary loops. In mild cases this results only in a pathologic permeability of the capillary walls; but in the more serious cases a thrombus formation occurs at the arteriolar-capillary junction. Davis found in severe cases a remarkable thickening of the intima of the vessels which resembles that seen in cases of endarteritis obliterans.

The authors experimented with protective ointments applied to the extremities of normal persons and of patients who had suffered injury from cold. Careful studies of skin temperature readings after controlled exposures yielded negative results. How much warmth should be applied to a frostbitten extremity during the early hours or days of treatment? Greene [2] insisted that frostbitten parts must be kept cool. He believed that the most favorable temperature was approximately plus 2 to plus 5 C. Application of heat to the frozen part, in his opinion, increased its metabolism and its oxygen requirement and encouraged the growth of bacteria. It also increased flow of blood to the parts, resulting in greater transudation and blistering. Davis and his associates treated a series of patients by keeping the damaged parts at controlled temperatures, approximating those advised by Greene, for periods ranging from twenty-four to forty-eight hours after the injury had been sustained. Simultaneously they also treated a second series of patients by exposing the damaged parts to room temperature. The results obtained by the latter method were equal to or better than those obtained by continued cooling. Attempts to accomplish peripheral vasodilatation by drugs such as amyl nitrite, glyceryl trinitrate, alcohol and acetylsalicylic acid administered both to normal persons and to patients with recent frostbites were likewise negative. The effect of these drugs on the peripheral capillary circulation was studied by means of electric thermocouples and through microscopy of the capillaries. None of the drugs caused an elevation of the temperature in the tested parts, nor did they cause a dilatation of the capillary bed. Blocking of the sympathetic nerve trunk and stellate ganglion with procaine hydrochloride was performed on patients suffering from acute vasoconstriction as a result of exposure to intense cold. Acute dilatation of the peripheral capillary bed could be effected in extremities in which there had not been permanent anatomic injury to the capillary wall or thrombosis at the arteriolar-capillary junctions. When thrombosis or irreversible injury to the capillary wall had taken place, blocking of the sympathetic trunk and the stellate ganglion failed to produce either a rise in the temperature of the finger tips or a reappearance of blood in the terminal capillary beds.

2. Greene, Raymond: Frostbite and Kindred Ills, Lancet **2**: 689 (Dec. 6) 1941.

THE SOVIET UNION AGAIN REVERSES ITS STAND, THIS TIME ON COEDUCATION

On June 27, 1936 the Central People's Health Committee of the Soviet Union passed a law prohibiting abortion except in the presence of stringent indications. Thus it completely reversed its stand of 1920, when it legalized artificial abortion. Simultaneously a number of measures calculated to lighten the burden of childbearing and induce the rearing of large families were proposed. Both Germany and Italy were, at the same time, encouraging the rearing of large families in their respective countries. One of the objections to the legislation, principally from Russian women, was that it represented an encroachment on the woman's right to determine whether she chooses to become a mother or not. As THE JOURNAL commented,[1] the attitude of the Soviet medical profession and in particular of the obstetricians and gynecologists was in sharp contrast to these views. According to one of the authorities (Professor G. A. Baksht) "The accumulated experience since 1920 furnishes abundant proof that an artificial abortion is a serious evil and that the operation even when performed *lege artis* leads to a number of injurious effects."

Now the Russians have decided to end coeducation in elementary and intermediate schools. Coeducation was introduced by the Bolshevists not for any definite pedagogic reason but principally because it was to be one more step in the emancipation of woman and the accomplishment of sex equality. Now it is argued in favor of segregation that boys and girls do not develop physically and mentally along parallel lines at certain periods of their lives. Thus, the school program which the girl from 11 to 14 years of age can carry on with ease is too great a strain for boys of the same age, while the general capacities of girls from 14 to 17 years of age are somewhat lowered. There is also the necessity of a different educational approach to boys from that to girls in various phases of their development, the necessity of different presentation of material and of different methods of teaching and working. This differentiation cannot be obtained if boys and girls are in the same class. Then there is the inescapable division of labor between men and women. Women have responsibilities which do not apply to men, and those responsibilities are of crucial importance in the survival of the nation. Women are

1. The Soviet Union Reverses Its Stand on Legalized Abortion, editorial, J. A. M. A. **107**: 1391 (Oct. 24) 1936.

mothers, and they must be able to look after children and to rear them. Separate education will result, among other things, it is believed, in strengthening the Soviet family. The emphasis on training for motherhood and rearing of families suggests that the motivating factor behind this measure is a long range program for increased manpower. This supposition finds support in the fact that Russia has reputedly lost some 17,000,000 of her population in the present holocaust.

Coeducation has fared well in the United States; few pedagogues of any importance clamor for segregation. Moreover, there has been a persistent increase in the birth rate to 24 per thousand of population with 3,200,000 births in 1943, an excess of more than 200,000 over 1942. What will be the results of this new experiment in the Soviet Union? The experimental approach to social problems, whatever the motivation, holds a greater promise than rigid adherence to the tenets of Marx or any other philosopher in the field of government.

Current Comment

FLUORIDE AND DENTAL CARIES

The protective action of fluoride against dental caries was first indicated by epidemiologic studies [1] which disclosed an inverse relationship between the prevalence rates of dental caries and the fluoride concentration of the municipal water supplies. Relatively low incidence of caries was found associated with the use of domestic waters whose fluoride concentration had a range of one or more parts per million.[2] Next, laboratory studies [3] revealed that salts of fluoride could inhibit the experimental production of caries in the molar teeth of rats. On the basis of this evidence, clinical investigations were undertaken in an attempt to control dental caries by the prophylactic and therapeutic use of fluoride salts. A method was devised by Cheyne [4] for the topical application of fluoride to the teeth without the attendant danger of its systemic ingestion or absorption. Briefly, the method consists in thorough cleaning of the teeth, which are then isolated by means of cotton rolls and dried with compressed air. A solution of sodium fluoride is then applied to the crown surfaces of the teeth and allowed to remain in contact with the surfaces for at least two minutes, during which the solution is dried. The effectiveness of this therapy was analyzed by Cheyne in a group of 27 children with carious deciduous teeth as compared to a control group with similar lesions who did not receive treatment. After a three months period dental examination showed that the treatment had effected a 50 per cent reduction in the incidence of dental caries and had been equally effective in suppressing carious activity in the preexisting lesions. This observation was confirmed by Bibby [5] with the topical application of 0.1 per cent solution of sodium fluoride to one quadrant of the mouth, using the other side of the same jaw as control. A 40 per cent reduction in the activity of caries in the treated quadrant was observed in a group of 78 children periodically examined for two years after the treatment. Knutson and Armstrong [6] more recently have used the same procedures, applying topically a 2 per cent solution of sodium fluoride. Two hundred and eighty-nine treated children, as compared to 326 control children, exhibited a reduction of 40 per cent in the incidence of dental caries. In this group the treatment was ineffective in preventing new attacks by caries on teeth already attacked, which was taken as an indication that the method was without effect in the control of active dental caries. As the analysis of activity in caries is dependent on a highly subjective criterion, further data will be required in order to warrant any definite statement as to the therapeutic effect of fluoride. Further, as an excess of fluoride is bound to produce chronic dental fluorosis, commonly known as mottled enamel, it is necessary to determine the minimum effective concentration of the element which will prevent carious lesions without at the same time injuring the teeth.

THE FIRST CANCER CONGRESS OF MEXICO AT GUADALAJARA

In these times, when inter-American relations are so important, the organization of a cancer congress by Mexico was timely. It brought together medical men of different American nations and gave them an opportunity of getting first hand information about interesting scientific developments in the Mexican republic. Mexican medicine is now at a transitional stage in many ways comparable to that of the United States several decades ago. Contrast is everywhere in Mexico. Whereas some Mexican clinical or scientific institutions are primitive, others are as up to date as the most modern institutions of this country—such as the institutes of cardiology, pediatrics and public health of Mexico City. One must add the magnificent units built by the Spaniards in colonial times, such as the orphanage in Guadalajara, which is still in perfect condition and is still serving its purpose. Whereas research in cancer, for instance, is yet in an elementary stage, the Mexican investigations in rickettsial diseases are among the most brilliant in the world. Although some of the surgical institutions may be faulty as far as organization is concerned, the operative skill of the Mexican surgeon is amazing. The cancer congress reflected the present stage of Mexican medicine. Whereas contributions to the theoretical side of the problem were few, the clinical papers were numerous

2. Mountin, J. W.; Pennell, E. H., and Nicolay, Virginia: Location and Movement of Physicians, 1923 and 1938: Turnover as a Factor Affecting State Totals, Pub. Health Rep. **57**: 1752 (Nov. 20) 1942.

1. Dean, H. T.: Endemic Fluorosis and Its Relation to Dental Caries, Pub. Health Rep. **53**: 1443 (Aug. 19) 1938.

2. Dean, H. T.: Domestic Water and Dental Caries, Pub. Health Rep. **57**: 1155 (Aug. 7) 1942.

3. Miller, B. F.: Inhibition of Experimental Dental Caries in the Rat by Fluoride and Iodoacetic Acid, Proc. Soc. Exper. Biol. & Med. **39**: 389 (Nov.) 1938. Hodge, H. C., and Finn, S. B.: Reduction in Experimental Rat Caries by Fluorine, ibid. **42**: 318 (Oct.) 1939.

4. Cheyne, V. D.: Human Dental Caries and Topically Applied Fluorine, J. Am. Dent. A. **29**: 804 (May) 1942.

5. Bibby, B. G.: The Effect of Sodium Fluoride Applications on Dental Caries, J. Dent. Research **22**: 207 (June) 1943.

6. Knutson, J. W., and Armstrong, W. D.: The Effect of Topically Applied Sodium Fluoride on Dental Caries Experience, Pub. Health Rep. **58**: 1701 (Nov. 19) 1943.

and of good quality. Some consisted of reviews of the different types of cancer, especially useful for the general practitioner and also for students, who attended the sessions in large numbers. Several of these lectures were given by Americans, forty of whom, mostly from the Southern states, attended the congress. Dr. R. R. Spencer, director of the National Cancer Institute, gave a paper on the program of work conducted at Bethesda, Md., while comparable papers on cancer control were read by Drs. Baeza and Valdés. Operative clinical sessions were held every day and proved the statement concerning the high level of Mexican surgery. The congress was organized by its president, Dr. G. Vazquez Arroyo of Guadalajara. It was sponsored by the president of the republic and by federal and state authorities and was supported by a large grant from the Mexican government. The program of entertainment was varied and was conducted with characteristic generosity. In the closing session Monterrey was selected as the place for the celebration of the second Mexican Cancer Congress, in 1945.

MEDICAL SCIENCE CENTER FOR DETROIT

Under the auspices of the board of directors of Wayne University in Detroit a project is now under way to create a $50,000,000 Medical Science Center to be built around Wayne University's College of Medicine. The proposal involves the erection of a dozen buildings including a library of medical sciences, new buildings for the schools of medicine, dentistry, pharmacy and nursing and allied subjects, an institute for graduate study and an institute of industrial health. The population and the characteristic industries of the city of Detroit unquestionably make it an excellent location for a great medical center and particularly for an institute of industrial health. The advances of modern medical science make necessary renovation and rebuilding of laboratories. The need for a medical center in Wayne County has long been recognized. A 53 acre site has been earmarked adjacent to the hospitals and medical office buildings of Detroit, and a special nonprofit corporation has been developed to raise the necessary funds and to guide the development of the new institution. The first unit—namely, the hospital—is to serve patients requiring public assistance and will be erected by Wayne County. No doubt the city and state will find it convenient to develop their medical care program in relationship to this medical center. Unique, however, is the proposed institute of industrial health. A few of our great universities now offer courses in this field, and many of the state medical societies, led by the Council on Industrial Health of the American Medical Association, have provided study in industrial health. Detroit is recognized as an industrial capital. Many of its great industries have already developed units in preventive and industrial medicine which have contributed to research and progress in this field. The concept of an industrial health institute as a part of a medical science center deserves all the encouragement that the medical profession can give.

THE AMERICAN MEDICAL ASSOCIATION AND THE NATIONAL PHYSICIANS' COMMITTEE

A statement released by Senator James E. Murray of Montana, whose name is familiar to physicians as one of the participants in launching the Wagner-Murray-Dingell bill, charges that the American Medical Association has set up a committee in Chicago which is sending out a huge amount of propaganda intended to distort and falsify the bill and cites a pamphlet published by the National Physicians' Committee. Simultaneously with this release Dr. E. H. Cary, president of the board of the National Physicians' Committee, issued a statement to the effect that the committee "is in no way connected with the American Medical Association except in that it is a committee of physicians and the physicians are members of the Association." From the headquarters office a statement was issued to the effect that "there is no connection whatsoever, officially or in the form of financial support, between the American Medical Association and the National Physicians' Committee, except that the House of Delegates of the American Medical Association has given its approval to the efforts not only of the National Physicians' Committee but of any other reputable organization that will aid in defeating this pernicious legislation." Senator James E. Murray would render the American people a better service by making certain of the alleged facts before making unwarranted charges. The proponents of the Wagner-Murray-Dingell bill must find the going tough if it is necessary to support it by this type of propaganda.

PENICILLIN IN THE TREATMENT OF RELAPSING FEVER

Relapsing fever is a tick or louse borne spirochetal infection which occurs endemically in most countries. With overcrowding and poverty, relapsing fever may become epidemic. According to the League of Nations report, more than 1½ million cases were observed in European Russia the year following World War I. Arsenic, usually arsphenamine, is said to be the most effective therapeutic agent. The occasional development of arsenic resistant spirochetes, the frequency of relapses and the hazards and complications which occur after arsenical therapy are disadvantages. The search for a more desirable agent has been made by Heilman and Herrell, who studied the effectiveness of penicillin against relapsing fever experimentally produced in mice by a single strain of Borrelia novyi. Although 100 Oxford units of penicillin per cubic centimeter did not cause a visible decrease in motility of spirochetes in vitro, 1,000 units to heavily infected mice was associated with their complete absence in the blood smear in two to three days. Of 26 treated mice only 1 (1 per cent) died, whereas in the control group 21 out of 27 (75 per cent) died. All untreated mice which survived exhibited relapses, while only 4 of the treated mice had a relapse. As the strains of the spirochete which produce relapsing fever are closely related, it is likely that penicillin will be effective also against other strains of this organism.

MEDICINE AND THE WAR

In this section of The Journal each week will appear official notices by the Committee on War Participation of the American Medical Association, announcements by the Surgeons General of the Army, Navy and Public Health Service, and other governmental agencies dealing with medicine and the war, and such other information and announcements as will be useful to the medical profession.

ARMY

THE CALIFORNIA-ARIZONA MANEUVER AREA

The California-Arizona Maneuver Area, formerly known as the Desert Training Center, is organized as a training theater of operations with all functions of combat, supply and service paralleling as closely as possible like functions in an overseas theater of war. Medical service, including evacuation of actual sick and injured from maneuvering combat troops, is performed in a realistic manner by use of medical battalions, field and evacuation hospitals and finally general hospitals. There are three general hospitals in operation at present exclusively for California-Arizona Maneuver Area troops. These are theater of operation type construction, 1,000 bed rated capacity and staffed by numbered general hospital units. These numbered units operate the hospitals for approximately three months to give them necessary experience and training to qualify them for overseas assignment. The three general hospitals are located as follows and operated by the units indicated:

Beaumont, Calif., 22d General Hospital:

Lieut. Col. Adrian G. Gould, M. C., commanding officer.
Major Clarence H. Rommel, M. C., executive officer.
Major Emmet F. Pearson, M. C., chief of Medical Service.
Major Foster L. Dennis, M. C., chief of Surgical Service.
Lieut. Col. Elton E. Hankins, D. C., chief of Dental Service.
Lieut. Col. Frank T. Moore, M. C., chief of X-Ray Service.
1st Lieut. Bernard Stempel, M. C., chief of Laboratory Service.

Spadra, Calif., 34th General Hospital:

Col. Walter L. Richards, M. C., commanding officer.
Major Myron S. Jared, M. C., executive officer.
Major Barnard Davis, M. C., chief of Medical Service.
Lieut. Col. William B. Schaefer, M. C., chief of Surgical Service.
Major Kyle L. Rose, D. C., chief of Dental Service.
Capt. Thomas W. Knickerbocker, M. C., chief of X-Ray Service.
1st Lieut. William B. Chamberlin, M. C., chief of Laboratory Service.

Banning, Calif., 297th General Hospital:

Col. Francis W. Pruitt, M. C., commanding officer.
Major Gordon E. Snyder, M. C., executive officer.
Lieut. Col. George F. O'Brien, M. C., chief of Medical Service.
Lieut. Col. Chester C. Guy, M. C., chief of Surgical Service.
Lieut. Col. Joseph L. Ubl, D. C., chief of Dental Service.
Major Elbert K. Lewis, M. C., chief of X-Ray Service.
Lieut. Col. Alex B. Ragins, M. C., chief of Laboratory Service.

DISPOSITION OF PERSONS WITH NEUROPSYCHIATRIC DISORDERS

Circular Letter No. 194, issued December 3 by the Office of the Surgeon General, is concerned with the disposition of persons with neuropsychiatric disorders. At the present time over 45 per cent of the certificate of disability discharges are for neuropsychiatric reasons. The importance of eliminating actual or potential neuropsychiatric noneffectives has not diminished. However, the possibility must be considered that neuropsychiatric criteria for service are now being interpreted too strictly and men are being separated from the service who could be of value were they retained. Each case must be evaluated individually and disposition made on the basis of clinical judgment as to the individual's potential value to the service. It is well established that a large proportion of men developing psychiatric disorders, particularly in combat zones, if properly treated and promptly returned to duty, recover entirely and render valuable service. Any one, no matter how sound his personality, may develop a psychiatric disorder under certain circumstances and will recover, if properly treated, when these circumstances are changed or when he has had an opportunity to adjust to them. An attempt should be made in each case to determine when the psychiatric disorder is merely the natural result of fatigue, misassignment or a distressing situation, or whether it is a manifestation of fundamental neuropsychiatric unsuitability for military service. Where the psychiatric disorder is believed to arise more from indifference toward the war than from fundamental instability of personality, the individual will be retained for service. Disposition of neuropsychiatric cases may be any of the three following:

1. *To full duty.* Individuals who, after careful study by examining medical officers, are believed to be of potential value at full duty in combat zones regardless of the psychiatric diagnosis which has been made will be returned to duty.

2. *To duty of less arduous nature than full duty in combat zones.* Individuals who, after careful study by medical officers, are believed to be noneffective for combat duty but potentially capable of serving in less arduous assignment, either in continental United States or overseas, will be returned to duty with a recommendation to this effect.

3. *Separation from the service.* (*a*) Individuals who, after careful study, are believed to be of no further value to the service because of the presence of psychosis, psychoneurosis, epilepsy or organic neurologic disease will be separated from the service under the provisions of section II, AR 615-360. (*b*) Individuals who, after careful study, are believed to be of no further value to the service because of the presence of mental deficiency, psychopathic personality or primary behavior disorders (such as chronic alcoholism or drug addiction) will be discharged under the provisions of section VIII, AR 615-360.

ELIMINATION OF UNNECESSARY LABORATORY WORK

The Office of the Surgeon General issued on November 30 Circular Letter No. 193, which is concerned with the elimination of unnecessary laboratory work. There has been a tendency on the part of section chiefs and ward officers in both medical and surgical sections to order laboratory work much beyond the actual need for the adequate care of patients. In view of the shortage of qualified laboratory personnel it is essential that laboratory work be reduced to a minimum. Reduction is desired in the following procedures, which appear to be carried out on an excessive scale at present: (1) blood cell counts, especially red cell counts and leukocyte differentials, (2) microscopic examination of urine, (3) bacteriologic cultures when smear examinations are diagnostic, (4) routine and repeated blood chemistry studies when the nature and course of the disease are clearly evident, (5) routine serologic tests for syphilis on admission and (6) sputum and stool examinations in individuals without symptoms of pulmonary or gastrointestinal disease. X-ray films, which are frequently made routinely, are not to be made when there is no clinical reason to suspect disease in the part x-rayed.

It is not intended that work essential for diagnosis and estimation of progress be curtailed. Prior to surgical operation, leukocyte counts, hemoglobin determinations and urinalyses are considered essential. Blood smear examinations for malaria

are of current great importance in the case of men returning from areas where malaria is endemic; search for parasites should be made carefully in this group. So that unnecessary work may be eliminated, individual consideration should be given to cases in determining the need for laboratory examinations.

This letter does not apply to examinations for induction, appointment and discharge, in which chest x-ray examination and certain laboratory tests are required.

FIFTIETH ANNIVERSARY OF THE ARMY MEDICAL SCHOOL

The Army Medical School, located at the Army Medical Center, Walter Reed General Hospital, Washington, D. C., marked its fiftieth anniversary December 18 with the award of certificates to the sixteenth class in military and tropical medicine to be graduated since August 1941. Col. Richard P. Strong, director of tropical medicine at the Army Medical School, presented certificates to the 124 graduates, which included officers of the Army of the United States, the Canadian and Peruvian armies, and officers of the state health departments. Major Gen. Norman T. Kirk gave the graduation address. Participating also at the graduation exercises were Major Gen. Shelley U. Marietta, commanding general of the Army Medical Center, and Lieut. Col. Thomas T. Mackie, executive officer of the course.

The fiftieth anniversary of the founding of the Army Medical School in 1893 was commemorated by a brief ceremony presided over by Col. G. R. Callender, director of the school, and honoring Col. Deane C. Howard, who ranked first in the initial class to be graduated and who was retired in 1922. Colonel Howard was chief of the Division of Sanitation in the Office of the Surgeon General during World War I and holds the Distinguished Service Medal.

MEDICAL MEETINGS IN NORTH AFRICA

The 45th General Hospital, which was organized from the faculty of the Medical College of Virginia, Richmond, began holding medical meetings shortly after its arrival in North Africa. The meetings, which have been held the second and fourth Thursday of the month since April, have all been arranged by Major Guy W. Horsley, chief of the surgical service. The speakers and subjects have been varied, and many of the talks have been on personal experiences of the speakers in many corners of the world. One meeting was devoted to the experience of medical officers in the Tunisian campaign, another to the removal of foreign bodies, another to experiences in the Belgian Congo with tropical diseases, and still another to the experiences of the commanding officer of an infantry regiment with his medical troops in the Sicilian campaign. Invitations to attend these meetings are extended to all medical officers both in hospitals and attached to troops through notice published in the daily bulletin of the base section where this hospital is located. The 45th General Hospital will continue to hold these meetings, which have been well attended and have proved a great success, throughout its stay overseas.

MAJOR GEORGE W. BEELER AWARDED LEGION OF MERIT

The Legion of Merit was awarded to Major George W. Beeler, formerly of Texas City, Texas. The citation accompanying the award read as follows: "Capt. George W. Beeler, medical corps, United States Army, for exceptionally meritorious conduct in the performance of outstanding services during the period from Jan. 1 to Feb. 28, 1943, at Guadalcanal. As chief of the surgical service of a field hospital, operated by a medical battalion, Capt. Beeler successfully performed innumerable surgical operations requiring the highest degree of skill. He also was responsible in a large degree for the excellent surgical care of the patients of the field hospital, which averaged 350 patients constantly over a three month period. He worked untiringly to care for the needs of the wounded." Dr. Beeler graduated from the University of Texas Medical Branch, Galveston, in 1932 and entered the service in September 1941.

LIEUT. COL. WILLIAM C. MENNINGER APPOINTED CHIEF OF NEUROPSYCHIATRIC BRANCH, SURGEON GENERAL'S OFFICE

The War Department recently announced the appointment of Lieut. Col. William C. Menninger as chief of the neuropsychiatric branch in the Office of the Surgeon General. He will fill the vacancy created by the death of Col. Roy D. Halloran, who died November 10 (THE JOURNAL, Nov. 20, 1943, p. 786). The primary objectives of the Army's neuropsychiatric service are to screen out at induction or eliminate later men whose mental instability is such as to render them unsuitable for combat or other duty, to aid in maintaining discipline and morale among all troops and to treat and rehabilitate men suffering from nervous disorders incurred in military service. Dr. Menninger graduated from Cornell University Medical College, New York, in 1924. He has been neuropsychiatric consultant for the Fourth Service Command since he was called to active duty Nov. 10, 1942.

CAPT. VICTOR V. VARE RECEIVES SILVER STAR MEDAL

Capt. Victor V. Vare, formerly of Jamaica, N. Y., and now serving somewhere in Italy as a surgeon with a tank battalion, received the Silver Star award for "devotion to duty." The citation accompanying the award read as follows: "For professional work and an excellent job in preoperative and postoperative cases, treatment, shock therapy and unstinting devotion to duty without regard for fatigue and loss of sleep. It is difficult to see how this officer got any sleep or rest for the first four days. The chiefs of the surgical teams wish to convey to you their sincere thanks and appreciation for the cooperation and help accorded in all respects during a trying period." Dr. Vare graduated from Columbia University College of Physicians and Surgeons in 1941. He was ordered to active duty on July 1, 1942 and was trained at Carlisle Barracks, Pennsylvania, and Camp Edwards, Massachusetts, before being sent overseas last April.

LIEUT. COL. JOHN M. SNYDER AWARDED LEGION OF MERIT

The War Department announced recently an award of the Legion of Merit to Lieut. Col. John M. Snyder, formerly of Slatington, Pa., for "exceptionally meritorious conduct in the performance of outstanding services from March 19 to April 8, 1943. On many occasions Lieutenant Colonel Snyder, chief of surgical service, worked unceasingly at the operating table until exhausted and then after only two hours of rest would continue his duties. The fidelity to his task and the calm and tenacious manner in which he performed his duties were a fine example and an inspiration to all with whom he came in contact. Lieutenant Colonel Snyder's performance of duties exemplifies the highest traditions of military service." Dr. Snyder graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1934 and entered the service March 12, 1941.

TWELFTH CLASS OF AVIATION PHYSIOLOGISTS

Graduation exercises at the School of Aviation Medicine, Randolph Field, Texas, for the twelfth class of Aviation Physiologists was held November 27. The course in aviation physiology is of five weeks' duration and treats of the effects of flight on man, the operation of low pressure chambers, the theory and practical use of oxygen equipment and the conduct of high altitude indoctrination and classification. Brig. Gen. Eugen G. Reinartz, U. S. Army, is commandant of the school. Among those graduating were 1st Lieut. Joseph H. Holmes, New York, and 1st Lieut. Jacob M. Werle, Cleveland, of the medical corps.

FAMOUS FOOTBALL COACH NOW STUDENT AT MEDICAL FIELD SERVICE SCHOOL

Major Edward N. Anderson, former head football coach at the University of Iowa, is a student officer at the Medical Field Service School, Carlisle Barracks, Pennsylvania, where in a six weeks course he will be taught the military knowledge necessary for him to be an efficient officer, capable of carrriyng out medical preventive measures and caring for the sick and wounded under war conditions. Although a physician by profession, Dr. Anderson has played and taught football for nearly two decades. He is a graduate of Rush Medical College, Chicago, 1929. During the off seasons Dr. Anderson has followed his medical profession and has done considerable research work in the interest of medicine. He received his commission in February 1943.

CAPT. MARY C. WALKER TO SUPERVISE CADET NURSES

Capt. Mary C. Walker, Army Nurse Corps, former assistant director of the Colorado State Board of Nurse Examiners, has been named to supervise U. S. Cadet Nurses entering army hospitals for six months' affiliation and training. Under the training and orientation program, in which approximately thirty army hospitals will participate, the students, all senior cadets, voluntarily take the six months army course, after which they assume either civilian or military nursing duties. While taking the army course they will be provided by Captain Walker with qualified army nurses as educational directors and clinical instructors. Every ten senior cadets affiliated with the army can relieve eight army nurses for overseas duty, Captain Walker explained.

TREATMENT OF VENEREAL DISEASE IN ARMY HOSPITALS

The treatment of venereal disease in army hospitals was recently discussed in Circular Letter No. 195, issued December 1 by the Office of the Surgeon General. Regardless of the specific type of venereal disease, the hospital management of patients with venereal disease ordinarily entails the use of diagnostic, epidemiologic and administrative procedures which are similar. In order to insure that these functions are well coordinated, the organizational charts for station and general hospitals will provide for a Venereal Disease Section. Since ordinarily each of the venereal diseases is now effectively treated by internal medication, making surgical or manipulative procedures rarely necessary, the Venereal Disease Section should be organized as a unit of the medical rather than the surgical service. In hospitals under construction and subsequently authorized, the staff organization will conform initially to this policy; in existing hospitals where the Venereal Disease Section is not already a unit of the medical service it will be transferred thereto unless, because of local conditions, such transfer would clearly be prejudicial to the most efficient care of patients with venereal disease.

FIRST WOMEN DOCTORS GO THROUGH TRAINING

The Army's first women doctors are going through their indoctrination and training at Lawson General Hospital, Atlanta, Ga., prior to their assignment to fixed medical installations. Ten doctors are in the four weeks course learning army medical procedure and administration. At the completion of the course they will replace male doctors for overseas service.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

INTERNSHIPS AND RESIDENCIES

The Directing Board of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians issued Form No. 317, dated December 22, to the state chairman for physicians, which is concerned with the approval by state boards of licensure of nine months' internship. The Federation of States Boards of Medical Licensure communicated with all states requiring the prerequisite of an internship for licensure to practice medicine. Every state and territory approved the nine months internship for commissioned officers, accepting either general military service or service in a military hospital of three months to make up for the entire internship of a year. A number of states did not approve the nine months internship for persons ineligible for military service. All interns not going to the service, therefore, should be told to serve an additional period of nine months as a junior resident, so as to qualify for the minimum internship requirements of some states. This is a means by which more physically disqualified men may be encouraged to take residencies.

RELOCATING PHYSICIANS AND DENTISTS DISCHARGED FROM THE ARMY

Arrangements for the relocation of physicians and dentists discharged from the army are explained in Form No. 316 recently issued by the Directing Board of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. The Veterans Employment Service, a division of the War Manpower Commission's Bureau of Placement, has a field staff which spends a considerable part of its time in hospitals from which soldiers are discharged in order to facilitate their return to civilian life. This field staff has now been instructed to work closely with the Procurement and Assignment Service in assisting discharged physicians and dentists to return to private practice. It is hoped that, as a result of this joint effort, physicians and dentists may be directed to critical areas and to other places where they can free men for military service who are now essential to their communities. The names of physicians and dentists approved for discharge will be furnished the Veterans Employment Service field staff by the army officials at hospitals from which discharges from service are made. The field staff will interview these physicians and dentists and will give the central office the following information for forwarding to the state chairmen:

1. Name, specifying whether M.D. or D.D.S.
2. Address of former place of practice or position, if any.
3. Address of contemplated place of practice, if definite decision has been made.
4. Type of practice.
5. State in which he is licensed to practice.
6. Exact date of discharge, if possible, or approximate date of discharge.
7. Address where he may be reached the following ten days.
8. Opinion of the individual as to when he will be able to practice.
9. Opinion, if possible, of the medical officer in the hospital as to the physical and mental condition of the individual, and when he will be able to undertake the practice of medicine or dentistry. (This information, of course, will be kept strictly confidential.)

Those persons who know where they intend to practice will be instructed to get in touch with the state chairman so that he may be informed. Procedures for effecting the relocation of other persons who have not made a definite decision have not yet been completely worked out. Methods for solving the many problems involved in returning veteran physicians and dentists to civil life will have to be worked out as the program develops. The Procurement and Assignment Service, however, has a definite responsibility to these veterans, as well as a continuing responsibility for furnishing physicians to the armed forces, having due regard for the medical needs of the civilian population.

MISCELLANEOUS

WARTIME GRADUATE MEDICAL MEETINGS

An extensive schedule of courses of instruction under the auspices of the Wartime Graduate Medical Meetings in Region 3 in New York has just been announced. The regional committee consists of Dr. Oswald R. Jones, Dr. Norman Jolliffe and Dr. Henry W. Cave. The schedule of courses at the Grand Central Palace, 480 Lexington Avenue, New York, is as follows:

January 14, Dr. Elbert Vander Veer, The More Frequent Allergies.
January 21 (repeated January 28), Dr. Harold E. B. Pardee, Significance of Normal and Abnormal Electric Cardiographic Tracings.
February 4 (repeated February 11), Dr. Algernon B. Reese, External Diseases of the Eye and Glaucoma.
February 18 (repeated February 25), Dr. William P. Thompson, Simple Laboratory Procedures.
March 3 (repeated March 10), Dr. Alan DeForest Smith, Foot Strain.
March 17 (repeated March 24), Dr. George C. Andrews, Common Skin Diseases in Soldiers.
March 31 (repeated April 7), Dr. A. Wilbur Duryee, Peripheral Vascular Disease.
April 14 (repeated April 21), Dr. John F. Erdmann, General Surgical Approach to the Abdomen.
April 28 (repeated May 5), Dr. Arthur Krida, Disorders of the Low Back.
May 12 (repeated May 19), Col. Douglas T. Thom, Neuropsychiatric Problems in the Army.

The schedule of courses to be given at Camp Shanks, Orangeburg, N. Y., is as follows:

January 13, Dr. Arthur H. Fishberg, Nephritis.
January 20, Dr. John B. Dunnington, Medical Ophthalmology.
January 27, Dr. George C. Andrews, Common Skin Diseases in Soldiers.
February 3, Dr. Byron Stookey, Low Back Pain and Sciatic Syndrome: Discussion of Causes and Treatment.
February 10, Dr. A. Benson Cannon, Syphilis.
February 17, Dr. J. Burns Amberson, Sequela of Acute Pulmonary Conditions.
February 24, Dr. C. Cary Eggleston, Rheumatic Cardiac Disease, Diagnosis and Treatment.
March 2, Not announced.
March 9, Dr. Robert Loeb, Present Status of Human Serum Albumin and Plasma.
March 16, Not announced.
March 23, Dr. Herbert Chasis, Hypertension.
March 30, Not announced.
April 6, Dr. Frank L. Meleney, Surgical Bacteriology in the Treatment of Surgical Infections.
April 13, Dr. Walsh McDermott, Present Status of Use of Sulfonamides in Surgery and Medicine.
April 20, Dr. Emery A. Rovenstine, Anesthesia.
April 27, Col. William C. Porter, Neuropsychiatric Problems in the Army.

On January 6 Dr. Dana Atchley gave the first lecture in this series on Medical Shock.

CHIEF MEDICAL OFFICER OF PHYSICAL REHABILITATION

Mr. Paul V. McNutt, federal security administrator, recently announced the assignment of Dr. Dean A. Clark, surgeon, U. S. Public Health Service, as chief medical officer of the Office of Vocational Rehabilitation to take charge of the newly established Physical Rehabilitation Section. In commenting on Dr. Clark's appointment, Mr. Michael J. Shortley, director of vocational rehabilitation, said that the use of federal funds for remedial medical treatment of the physically handicapped was authorized for the first time under the Barden-LaFollette act of July 6, 1943. He explained that the new vocational rehabilitation program will make an important contribution to the war effort by facilitating the employment of the physically handicapped and thus promote effective use of manpower for war work. The rehabilitation program is designed to assist all physically handicapped individuals to obtain remunerative employment, except veterans with service connected disabilities, who come under the program directed by the Veterans Administration. The program is operated by the states through their boards of vocational education and their official agencies for the blind.

As a war measure the federal government pays the full cost of rehabilitating war disabled civilians. These include officers and crew members incapacitated while on war duty in the merchant marine and members of the Aircraft Warning Service, Civil Air Patrol and U. S. Citizens Defense Corps. The federal government pays half the cost of rehabilitation for other individuals. All administrative expenses of the states in conducting approved rehabilitation programs are also met with federal funds. Under the new statute, federal aid may be utilized to provide all types of medical and surgical services necessary to modify a physical condition which is static and which constitutes a substantial handicap to employment. Conditions for which medical services are undertaken must, however, be of such a nature that treatment may be expected to eliminate or substantially reduce them within a reasonable length of time. Hospitalization not to exceed ninety days may also be furnished as well as prosthetic appliances essential for obtaining or retaining employment.

Dr. Clark graduated from Johns Hopkins University School of Medicine, Baltimore, in 1932.

CHILEAN ARMY DOCTORS INSPECT NATIONAL NAVAL MEDICAL CENTER

Two Chilean army doctors, Col. Flavio Meza Olva, prospective surgeon general of the Chilean army, and Major Ramon Vicuna Herboso, surgeon attached to the army headquarters, recently completed a tour of inspection of the Naval Medical Center, Bethesda, Md., and the Army Medical Center, Washington, D. C., during which Dr. Vicuna contributed his blood for the American armed forces "as a symbol of amity between the army of Chile toward the American army." Dr. Meza was formerly professor of medicine at the University of Chile, and Dr. Vicuna is now professor of medicine. The two medical officers arrived in this country December 5 on a medical mission sponsored by the Coordinator of Inter-American Affairs. They will study military medicine and civilian teaching methods in various sections of the United States.

PUBLIC HEALTH UNDER HITLER

Peyche Peychev reports in *Slovo* (Bulgaria) of Oct. 1, 1943 that the state of hygiene in restaurants and other food producing establishments is deplorable. After stressing the need for more cleanliness, he writes: "One must acknowledge that, owing to the nonexistence of continuous and strict sanitary supervision, the reality is very dark. Everybody who has occasion to enter the kitchens of restaurants and hotels and of shops where sweets, milk or bread are produced or where food is canned will be bewildered and disgusted by the dirt and lack of hygiene reigning there. In most of such concerns, kitchen workers are disgustingly dirty, awful to look at, and wear no overalls. Copper vessels have not been tinned, and all vessels are extremely dirty. The food is always covered with flies and creeping insects. I leave it to the imagination of the readers to decide what the products are like. In certain shops the tablecloths and towels are dirtier than the puttees of soldiers in the front line. What we have just said is not a myth but reality itself which may be checked at any moment. That is why we ask for stricter sanitary control."

According to *Novo Vrome* (Yugoslavia) of Oct. 1, 1943 the state of contagious diseases in Belgrade during the last month shows certain changes: The influx of typhus still continues. The number of reported cases of typhus last month is 7, which is the same as the month before last. Typhoid shows a seasonal increase, that is to say there are 25 new cases against 13 for the month before last. Scarlet fever shows an increase, as always in the beginning of the school year, but there are no serious cases. Diphtheria has also increased, with 87 cases compared with 58 in August. All schools and children's organizations have received orders to take the most energetic countermeasures in connection with this increase. Malaria, as the chief seasonal illness, shows a pronounced decrease; in September there were 415 cases recorded, as compared with 999 in the previous month. Antimalarial activity, which gave such good results in August, has been continued, but on a somewhat reduced scale. A large number of springs have been chlorinated.

ORGANIZATION SECTION

OFFICIAL NOTES

ANNUAL CONFERENCE OF SECRETARIES AND EDITORS OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

FRIDAY, NOVEMBER 19—MORNING

Dr. Roger I. Lee, Chairman of the Board of Trustees of the American Medical Association, welcomed the conference.

Dr. John S. Bouslog of Denver was elected chairman.

Address by Dr. James E. Paullin, President of the American Medical Association

During the past ten or twelve years it has been my pleasure to have been intimately associated with the activities of the office of the American Medical Association here in Chicago. I think some of us, unfortunately, get the idea that the headquarters office is an institution which is set apart from the state associations, whereas it is your office, and it is conducted according to the policies and instructions given to it by the House of Delegates of the American Medical Association. The headquarters office makes every effort to carry out the policies which have been determined for it to follow.

At this time I should like to bear witness to the faithfulness with which the Board of Trustees handles the affairs of the Association. During the past two years it has been my pleasure to meet with them on many occasions, and I have never seen a group of men more earnest and who have devoted more attention to the business of the association.

What I say concerning the Board of Trustees is true for every member of the councils and bureaus in this organization. All of you are familiar with the efforts of two of our staff, in particular, who really supply the inspiration for the activities of the headquarters force. No words of praise are too many to be given to the untiring, unselfish work of Drs. Olin West and Morris Fishbein.

During the past year the Association has been extremely active in attempting to look into the future concerning many problems that face us. The House of Delegates directed that the Wartime Graduate Medical Training Program should be instituted as a part of the activities of the American Medical Association, in cooperation with the American College of Surgeons and the American College of Physicians. The accomplishments of this committee, with the help of a long list of honorary consultants drawn from civilian practice and from the military service, in making available the latest developments of scientific medicine to physicians in military and civilian practice throughout the United States, is a record of which we are proud. The appreciation with which these programs have been received by all is a tribute to the foresightedness and to the planning of the House of Delegates, in making possible this contribution of American Medicine in the fulfilment of our desire to be of greater helpfulness in stimulating an interest for postgraduate teaching among military and civilian physicians.

The Postwar Planning Committee has held several meetings. There are problems which have been discussed by this group which should be of interest to you; first, problems that directly concern us in this country; second, problems which will concern us after the war is over, in our relationship to the countries of our allies.

One of the problems about which there is much discussion is that of supplying physicians to meet civilian needs for medical care. With the adoption of the accelerated medical training program by the Army and Navy, in which there will be allotted about 20 per cent of the available places in medical schools for physicians to be used in supplying civilian needs (the 20 per cent to be composed of men deferred by Selective Service, those physically disqualified for military duty and women) it is evident that under the most favorable circumstances this would give only about 1,200 graduates each twelve months to meet the demand. If conditions remain as they are now, with no change in the mortality rate of doctors over 40 years of age who are engaged in civilian medical practice, there will be an annual deficit of nearly 2,000 physicians. It isn't believed that the 1,200 graduates each year allotted to civilian medical care can be placed in this essential capacity. Of the women graduates some will undoubtedly join the Army or Navy, and industry will claim many others. Should the war last beyond 1945 this shortage will become a very serious problem, even though many of the physicians discharged from the military service will enter private practice. This will not be sufficient to meet the deficit caused by deaths and retirement.

Another problem which concerns us is that of providing for the 20,000 physicians who will be anxious to begin the practice of medicine when the war ends. Of this number some have never engaged in the private practice of medicine; some entered the military service after a brief nine months internship, others after a longer period of training either as a resident or as a fellow. A postwar planning group, utilizing the facilities of the Council on Medical Education and Hospitals, the Bureau of Medical Economics of the American Medical Association, together with the Procurement and Assignment Service, in cooperation with state and county medical societies can be most helpful in organizing a program for the better distribution of physicians into areas where they are most needed and in making suggestions to communities which would make many of them more attractive to the well trained young physician to begin the practice of medicine.

Many of the younger men returning from military service will feel the need of additional training or instruction before undertaking medical practice. Some will desire refresher courses to equip them for general practice; others will want a longer period of training and some may wish, in addition, to take postgraduate training or special long term training to qualify for one of the specialties. The Postwar Planning Committee has attempted to anticipate many of these needs, and subcommittees are studying many of the problems preparatory to offering suggestions for their thoughtful solution. This may necessitate the establishment of a clearing house, so to speak, where information concerning these problems will be readily available.

Many state medical associations have already appointed a postwar planning committee to formulate plans for solving of their local problems. As the war advances and as civilian and military medical needs become more acute, there will be greater need for this type of service. To the secretaries of the state societies I wish to direct attention particularly to the needs of the rural population and to request that their needs be studied and a plan of action formulated which will be helpful in supplying them with much needed medical care.

The average graduate of our medical schools today is so well trained that unless clinical laboratory, x-ray, electrocardiographic and hospital facilities for the care of his patients are available to him in a given locality he naturally will seek some other place where these facilities are obtainable. Needs such as this must be considered and solved by each state; the natural organizations to be utilized either in a coordinating or consultative capacity. The location or the relocating of many physicians after the war is over will continue to be one of our chief problems. We, as a profession, can supply the personnel to furnish good medical care, but there are other problems involved in such a procedure in which other groups can be most helpful in supplying facilities.

Finally, I do not come to you with a completed program or with a correct solution for the many problems which will arise in this postwar medical world. I do not know of any one of several methods of procedure which will satisfactorily solve all of these questions, but I do know that we, as a profession, have

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devoted and will continue to devote our best efforts to solve our part of this problem. It can best be accomplished through a cooperative effort of county, state and our national medical association and with other agencies interested in postwar problems.

Problems Relating to Assignment of Duties of Military Surgeons

MAJOR GENERAL GEORGE F. LULL, Deputy Surgeon General, United States Army: When the war started we had 1,250 medical officers. If any business expands 100 per cent it is considered that it has had an enormous expansion. We expanded from 1,250 to 40,000. It took place over a period of two or three years. At one time the rapidity of the expansion was enormous. We have discharged, in the last two weeks period, more doctors than we have taken into the Army, so we are not expanding so rapidly now. These men have had to do jobs many of which were similar to the ones they did in civil life, and others altogether different from what they did in civil life. They had to do military medicine. Military medicine is not just putting a uniform on a doctor and putting him to work. Even in a hospital in the interior zone there are certain things he has to do that are different from those he does in civil life. The basic treatment of the sick is the same all over, but there are certain other functions that he has to perform in the Army which are entirely different.

The chief surgical consultant of the British army from North Africa has stated certain principles. "The following points were made in General O'Gilvie's lectures here in this country: 'There are four things that any surgeon, however brilliant and however experienced he may be, must learn afresh when he enters the theater of war: 1. Military surgery is not just traumatic surgery in uniform, but part of the science of warfare. 2. The clinical picture of a wound has to be learned afresh, just like the symptoms and signs of appendicitis. 3. No surgical procedure in war is complete but is a part of a process whose preceding and subsequent steps must be taken into account. 4. The teachings of the last war, which still dominate articles in textbooks, are not applicable today.'" These impressed General O'Gilvie in the practice of surgery in the theater of operations.

When we started to take in physicians who were supplied to us by either the voluntary service system or through the Procurement and Assignment Service, many desired a specific assignment. They wanted to go to Fort X to do x-ray work at Fort X. We told them that we might give them an initial assignment at Fort X to do x-ray work provided there was a vacancy, but after they were originally assigned we had no way of continuing them at Fort X. They would be sent to the place where their services were needed the most, and they would be assigned to do the work that was needed most.

For scarce categories of specialists we have no complaints. We have always been a little behind with the procurement of x-ray specialists; therefore every man who knows anything about x-rays, I believe, is assigned to x-ray work.

There are other specialties for which it is rather difficult to make assignments. Pediatricians, for instance, gynecologists, obstetricians and to a certain extent ophthalmologists and otolaryngologists are difficult to assign.

I believe that this postwar planning which is being sponsored by the American Medical Association is a wonderful project. We should have a plan to take care of these men after they come back from the Army and Navy. However, I believe the problem is not going to be as difficult as we think. A large percentage of these men are going right back to the job and to the place from which they came. As Dr. Paullin has said, the men who have recently graduated in medicine comprise the group we have to take care of particularly. But don't think for a minute that these men aren't learning something in the Army, no matter if they are out with a tactical unit. These men are learning something that they would not learn in a peacetime hospital, nor would they learn it in the practice of medicine until they had been out a long time. Self reliance, working with what they have to work with, having a lot of people dependent on them absolutely for medical care, both the prevention of disease and for the primary institution of treatment, are things they are being taught today.

I talked a short time ago to a man who had just come back from the southwest Pacific. On the particular island we landed at two points. One battalion of infantry landed on a beach, and their objective was to take a certain hill dominated by the Japanese and containing a large number of pillboxes armed with machine guns. The other force was to keep contact with them along the side and come up on the flank of the hill. They became separated in the jungle, and the Japanese on the hill thought that only the small force was coming up the hill, so they left the pillboxes and came down to whip them. That is where they made a mistake. But they did cut our men off from the main body. A shell exploding near a soldier didn't blow his arm off, but it destroyed his forearm, which was crushed and useless; it could not be saved. The young doctor with the battalion had no instruments except a pocket instrument case. He had some ether and some alcohol, so he got his assistant to anesthetize the patient. He put some alcohol in a ration can, lighted it and sterilized a small medical department hand ax. He fixed a frame board and chopped the arm off, covered it with sulfanilamide powder and during the course of the two days gave the patient six transfusions of blood plasma. The man is back in the United States now, he has had his stump repaired, and he is going to live and get along all right. This doctor had been out of an internship only a few months. He went overseas with an affiliated unit as the junior officer in the unit, and he volunteered to go with that party to that island. That boy has learned a lot, and he is only one of many. He has had the courage of his convictions.

We have had letters from your members in which they complain that they have nothing to do. Well, sometimes they have nothing to do because they don't see what they have to do. In the training period in the United States these men are supposed to be training their assistants and their enlisted men to be valuable assistants in time of combat. They have to be ready for the time when combat comes, and this preparation has to be done before they reach the theater of operations.

Many things have to be considered and decided by the senior medical officer with any unit, even if it is a battalion. Where will he establish his battalion and general aid station? Where will he establish it so the soldier will get prompt care and have his life saved? He has to establish that aid station at the nearest possible place back of the line where there is some slight protection and where the soldier can be sent immediately.

The type of warfare they are waging in the Pacific area is altogether different from the type being waged in North Africa. They are two different types of warfare. What the doctor has to do in one place is entirely different from what he does in the other place. The doctor in North Africa, on account of the great mobility of the front lines, might find himself with more German wounded than American wounded, while the American wounded are in the hands of the Germans, because the lines bend back and forth over great stretches of country. It is different in the Southwest Pacific, where the men land on an island where a bulldozer has to make a trail before troops can go ahead, because if they get through the jungle they have no way of bringing up supplies. Climatic conditions are different.

We have one great enemy in both places—malaria. That has been stressed both in the press and in the medical journals, because malaria is something that we must fight just as hard as we have to fight the Japanese or the Germans. It does not kill except a relatively small number of persons, but it does put them out of combat, which is just as important as if they were killed outright.

I think we have a splendid representation of American medicine in the Army. The American soldier as a whole is getting better medical care than he got at home, because many of our boys came from rural areas where the standard of medical care, as Dr. Paullin said, is not the best, because doctors do not like to go to those areas. Our boys are getting a high type of medical care.

One of the first principles is to get the wounded man back to a hospital. In some places this is very difficult to do, and in the Southwest Pacific at times it takes eight litter bearers to carry one man. They have to go in relays over trails and through the jungles. In North Africa sometimes they can be evacuated by airplane direct to a hospital in very short order.

There are a number of things that have cut down our mortality in these advance hospitals. In Tunisia the mortality was between 2.5 and 5 per cent in the advance hospitals. That is a reduction from World War I figures of from 9 to 12 per cent, depending on the action. This is due to a number of things, and it means that if the wounded soldier is taken back promptly his chances of recovery are better than ever before.

I said before that we lost, in the last two weeks, more doctors than we have gained. That is very true. If you read the death notices in THE JOURNAL you will see that black box at the end of the death notices. That contains always a number of names of men who died in the military and naval service. A great many of them are killed in airplane accidents. Then we have men who cannot keep up. We took in medical men and lowered the medical standards and waived many disabilities in medical men who were anxious to get into the service. They are being let out now, a few of them at a time, because they simply can't stand the gaff, and each month they amount to a considerable number.

We feel that the medical profession now is divided up in the country about as follows: There are the men in the military and naval services. Second, there are the men who are too old or who are physically disqualified—a large group. Third, there are the men who are essential to civilian life, especially in teaching institutions. Fourth, there is still a group who are nonessential in civil life but who have no desire to enter the military and naval service.

I say this, and I believe I shall be borne out by the Procurement and Assignment Service, which has carefully combed each state for men who are available and who are not available: The voluntary system of recruiting medical officers is over. There are no more volunteers in the United States, except among the group who should not be allowed to volunteer. We will all agree on that. It does not mean that the men who want to come in are all in; there are many men who desire to enter the Army and Navy who should not be allowed to enter because their place is back home. In some places the numbers amount to more than others, relatively and absolutely. But we feel that we are through getting any more volunteers.

We are short many specialists. We have to form a number of hospitals to go overseas, and we are short a great many of the specialists needed to put in those hospitals; that is, the men who have the right training. We can get men who have had partial training, but we feel that the hospitals going out in the next six or eight months will not go out as well equipped, as far as personnel is concerned, as the hospitals that have previously been sent out. This will mean that the theater surgeon may have to make certain adjustments between the hospitals he already has and the ones he is getting, in order to balance the staffs, and it means that all in all the staffs will not be quite as good as they were formerly.

DISCUSSION

DR. HAROLD S. DIEHL, Minneapolis: General Lull, I wish you would comment further on the need of the Army for additional medical officers. From your statement about the stabilization of the medical corps, I think one might conclude that the Army's needs have been met, while, as you know, the Procurement and Assignment Service is receiving exceedingly urgent appeals from both the Army and the Navy for some 12,000 more medical officers.

GENERAL LULL: I did not mean to convey that impression at all. I meant that we were through as far as we were able to get volunteers. The Army needs now, in addition to the men graduating who act as replacements, about 5,000 to 7,000 more doctors. We had a program in which the doctor was placed in a table of organization or an allotment so that it called for about 62,000 medical officers. We saw we could not get them from civil life, that this was impossible. So we tore the table down and felt that if we could get 48,000 or 49,000 doctors we could get along and give the soldier excellent medical care. When we fall below that the care will not be quite as good, but that is something we simply have to make the best of. It means that one doctor will look after a great many more patients. He cannot give them the individual attention that he could give if we had fewer patients, and we can get along with that number, we feel; but we haven't got that number. I believe the last figures we had showed a rough figure of about 40,000. It isn't because the Procurement and Assignment Service has fallen down on the job of picking them out—it picks them out all right and gives us the names. It turns over to the Office of Procurement Service those names, but then the procedure bogs down. Even when the doctor has signed and mailed his questionnaire, saying he desires to enter the Army first and the Navy second choice, even if he sends that questionnaire in, we have found a good many hundreds of them who absolutely refuse to sign up when the time comes.

DR. STANLEY B. WELD, Hartford, Conn.: Is there any hope that Selective Service will help out the situation at all, especially in the age group between 38 and 45? I believe in our state they are absolutely sitting on their haunches.

GENERAL LULL: I don't know whether they will or not. It all depends on the local board, of course. Some states have cooperated much better than others. When a man refuses to take a commission, his name is sent to the Selective Service. But usually when it gets down to the local board level there is some reason why he should not go into the service; perhaps he is needed in the community.

DR. PETER IRVING, New York: I should like to ask a question as to how the young men who have had only nine months of hospital training have turned out in the eyes of their commanding officers, and whether they have had enough hospital training to make them worth anything?

GENERAL LULL: We haven't enough to know. That is just starting, so we haven't been able to judge it as yet. You know what these men are going to get after the nine months of hospital training: They are not going out with troops right away. Probably half of them will be sent to big hospitals for six weeks, while the other half will go to Carlisle for six weeks of instruction; then they will be exchanged, so they will all get some hospital training.

DR. W. EDWIN BIRD, Wilmington, Del.: Is the Army taking men without state licenses?

GENERAL LULL: Recent graduates, yes. A man who has finished his medical school and his internship is taken without a state license; or if he is a graduate of an accredited school he is taken. We do not take the men who have been out a number of years and who have no state licenses. For instance, we have some cases where a man has been an intern, an assistant resident and a resident for three, four or five years and has never taken a state board examination. We take him if he has been in an accredited hospital.

DR. D. G. EDMUNDS, Salt Lake City: While the Procurement Board has done well, it has not furnished enough men. Do you think the state boards will be done away with and that the government will take over directly?

GENERAL LULL: It is not the fault of the Procurement and Assignment Service that it has not procured the men: it is the fault of the charter under which it operates. It operates under a set of rules whereby it can put the finger on a man, but that is as far as it can go. I do not think they should be done away with.

DR. MORRIS FISHBEIN, Chicago: Can you think of any suggestion that you can give the secretaries and editors as to how they could aid in securing men marked available by the Procurement and Assignment Service?

GENERAL LULL: Public opinion can be brought up locally much better than it can nationally. If there is some way that the finger of public opinion could be pointed toward those individuals it would be a big help to us and to the Procurement and Assignment Service.

DR. R. B. ANDERSON, Forth Worth, Texas: The statement has been made that the Procurement and Assignment Service is helpless in making some of these doctors enter service after they have been declared available. The Procurement and Assignment Service does have a whip and does have a compulsory feature with selective service that can be used for those who are within the age bracket of selective service. I am vice chairman for Procurement and Assignment in Texas. When one of our doctors in Texas is declared available for military service he is informed of it in a letter and is told that

he has been declared available. He is told the proper office of Procurement to which he should go to get his commission. At the same time he is told that we have a directive from the Washington office of Procurement and Assignment that requires our office to report his name to the state director of Selective Service if he does not seek the commission within a certain period. That has been agreed on as reasonable—sixty days. That letter gets results down in Texas.

GENERAL LULL: I think we have got our quota from Texas, too; haven't we?

DR. ANDERSON: We have supplied you with our quota and we have tried to find out how much over we were, because we don't want to fight the whole war.

DR. E. D. SHANKS, Atlanta, Ga.: What happens in Texas is also true in Georgia. Dr. Selman, who is here, is state chairman of Procurement and Assignment. I am a member of that committee. I am also secretary of the Medical Association of Georgia. We have had in our state the usual experiences in procuring doctors for the Army and Navy. We have had, as Dr. Lapham knows, some misunderstanding about some of these doctors. In the end public opinion prevails.

GENERAL LULL: In the smaller communities throughout the country public opinion is so close to the individual that it does have a fine effect. In the big cities the individual doctor is far removed from public opinion.

Hospital Training of Medical Graduates

DR. VICTOR JOHNSON, Secretary of the Council on Medical Education and Hospitals, Chicago: [Dr. Johnson traced the historical development of the Council on Medical Education from 1846 onward.] The permanent Council on Medical Education, established in 1904, reiterated a belief in the indispensability of hospital training. The Council early recognized that internship problems involve features different from those of the hospital training of undergraduates. An important factor is that most hospitals offering internships are removed from the direct influence of medical schools. It became clear that the development of adequate intern training required the Council to obtain better information about hospitals offering intern training. Although in 1913 no medical school or state examining board required the internship for the degree or for licensure (Pennsylvania was the first state to require the internship for licensure [1914] and the University of Minnesota was the first school to require the internship for the M.D. degree [1915]) 70 per cent of the graduates took internships voluntarily at that time. This student recognition of the value of hospital training, supplemented of course by advice from medical schools and physicians, was and still is a more potent factor in inducing students to intern than is regulation through law and degree requirements. At the present time twenty-six states require no internship for licensure, and sixty of the sixty-six four year medical schools do not require this for the M.D. degree. Yet virtually every medical student takes such training.

In approving hospital residencies for training in the specialties, the Council collaborates closely with the various specialty boards. These "American boards," of which there are now sixteen, have been organized by various national societies of specialists in conformity with the Council's Essentials of an Approved Specialty Examining Board. Annual lists of approved residencies, internships and fellowships are prepared. In addition to 1,161 hospitals approved for internships, residencies and fellowships, the Council likewise maintains a hospital register of 6,345 hospitals which, although not approved for internships and residencies, measure up to standards of medical service as set forth in the Council's Essentials of a Registered Hospital. Before considering a hospital for membership, the American College of Surgeons and the American Hospital Association require inclusion of the hospital on the American Medical Association's list of registered hospitals.

Conventionally, the training of the medical student has been divided into three units: two preclinical years, two clinical years and one intern year. A notable trend, extending over many years, has been the erasure of these artificial time delimitations. Clinical material is being introduced into the first years in medical school, vitalizing basic science subject matter and lending meaning to much that might otherwise seem purely academic. Basic science material is infiltering itself into the clinical years and increasing their value, with physiology conferences on clinical problems, scientific bacteriology studies on infectious disease patients and the like. Similarly the transition from the senior year of medicine to the internship is becoming less and less abrupt. Through the years there has been a change from clinical work, in which medical students sat in large classes and listened or spent long hours trailing through hospital wards on rounds, to the present system of clinical clerkships, in which the medical student has definite responsibilities as an important member of a hospital team including laboratory technicians, nurses, house staff and attending physicians. The student is on call day and night and often is the first to get the history, make the examination and do the necessary routine laboratory procedures. In some schools selected senior medical students live in the hospital as student interns with responsibilities far beyond those of the medical student of years ago while still subject to close supervision and careful checking.

Wartime acceleration has affected education in all fields of learning and in all stages of the education of a doctor. A serious responsibility rests with every one who has been concerned with the long years of training required for the professions, especially medicine, to evaluate carefully these wartime programs, with a view to retaining after the war those features of acceleration promising to improve our educational program and reduce the training period, consistent with quality.

Of the various accelerated programs, that of the regular undergraduate medical curriculum is perhaps the most likely to justify its permanent retention, perhaps in modified form. The only change is the elimination of the long summer recess. It is not clear why a medical student should be able to do good work for only three fourths of the year and why he requires twelve or more weeks each year away from his job. There is no apparent justification for requiring a student to spend an extra nine months or a year in medical school necessitated by the long vacation periods, which annually waste 5,000 physician years. Immediately on graduation the student will embark on a work program in his internship and residencies in which he will rarely have more than two weeks of respite from work. This will probably continue throughout a lifetime in the practice of medicine. There seems to be no good reason why a student, on graduation, should suddenly cease to require a three months diversion from medicine and abruptly become an individual requiring but two weeks. The accelerated program can allow vacation periods totaling four or five weeks.

I do not propose to discuss all the pros and cons of medical school acceleration except to state that any reduction in educational standards which may have occurred under our wartime program is due far more to several other factors than to acceleration itself. The premedical programs are accelerated not only by employing practically the entire calender year for instruction but by greatly increasing the quantity of work done by the student per day or week. Whether students can successfully carry this load remains to be determined when the programs have been in full operation for a time. Serious doubts about the quality and breadth of the preparation of premedical students have been expressed. It is highly probably that the degree of acceleration involved in the Army and Navy programs will not and should not be continued after the war. The most recent acceleration—that of reduction of the internship to nine months, with three months in the service considered also as an internship, must clearly be considered a wartime emergency necessity which should be discontinued at the earliest possible moment. This plan, unlike both premedical and medical programs, decreases both the total duration and the quantity of training of a vital part of the education of a doctor.

Adoption of the plan resulted from these important considerations: (1) The periods of overlapping internships caused by the graduation of medical students every nine months instead of annually wasted medical manpower, and (2) the 9-9-9 program was the only method of deferment of commissioned officers as assistant residents and residents that the surgeons general of the Army and Navy would approve. An educational war casualty, the nine months internship has nothing to commend its continuation beyond the emergency period.

It is anomalous that at this time, when our hospitals are improverished of interns, we must give serious consideration to provisions for a plethora of house officers. This will occur after the war. There will be thousands of medical officers whose hospital training has been interrupted who will seek continuation of their house officerships. Besides providing training for new generations of medical graduates, we are obligated to find opportunities for these medical officers to continue their training.

The Council on Medical Education and Hospitals has undertaken a study of this problem as one of its major responsibilities. In a preliminary survey information has been obtained regarding postwar residencies, basic science instruction, public health education and other postgraduate courses from 641 hospitals, 55 medical schools, 25 departments of health, 23 state medical associations and 15 special societies and examining boards. Information obtained, although incomplete, is most encouraging. Under normal conditions the 660 civilian hospitals approved for residency training supply facilities for approximately 5,500 resident physicians. The present survey reports 8,028 residencies in 545 hospitals. It is apparent that many institutions have almost doubled their educational capacity for postwar training. If this degree of expansion is maintained, it should be possible to develop 12 or 13 thousand residencies in the approved hospitals, especially if the potentialities of the internship hospitals are also taken into consideration.

Just how many medical officers will be seeking advanced training after the war cannot be determined at this stage, for there are still many unknown quantities as regards the duration of hostilities, casualties among medical personnel, rate of demobilization, opportunities for permanent assignment in the Army and Navy, postwar subsidies and other economic factors. It has been estimated, however, that approximately 12,000 graduates of recent years are now serving in the armed forces whose previous training in civilian hospitals did not extend beyond the intern year. Perhaps 6,000 of this group will later seek hospital appointment. In addition there is the possibility that some 2,000 former residents may return to complete their original assignments or establish themselves in other specialties. Thus with a normal civilian complement of 5,500 residents the approved hospitals may also be called on to furnish 8,000 additional residencies in the immediate postwar period.

There is evidence in the reports of the medical schools that careful attention is also being given to the problem of supplying basic medical science instruction in the postwar period. Up to the present time 37 schools have indicated that facilities will be available for continued training in the preclinical fields. Twelve hospitals reported affiliations with medical schools to provide supplementary instruction in basic sciences, while 24 others indicated that courses of this type would be developed in their own departments of bacteriology and pathology. From the information now at hand it is apparent that 117 positions are available in anatomy, 124 in bacteriology, 135 in pathology, 96 in biochemistry and 123 in physiology. Information received from 60 hospitals, 26 medical schools and the various state medical associations and departments of health indicates that 259 postgraduate courses have been organized which can accommodate at least 4,522 physicians. This study will be continued, so that at the close of the war we hope to have available a printed list of all educational opportunities available to returning medical officers and especially planned for them.

DISCUSSION

Dr. G. Lombard Kelly, Augusta, Ga.: Has any thought been given to increasing the length of the medical course? I have thought it might be possible, after the war, to lengthen the school year to ten months. I see you are in favor of an accelerated program. I do agree with you that three and one-half months is quite a waste of time in the summer. I would like to suggest consideration of a ten months session, four years of ten months each, with July and August omitted. I should like to know what you think of that.

Dr. Johnson: Your suggestion is an increase in the school year but no reduction in the number of years; in other words, four years of ten months each, with an inclusion of much more into the undergraduate curriculum. I think one could justify increasing the curriculum in terms of total weeks spent in medical school on the basis of accumulating new information which should be available to medical students, but you can also advance the argument that the medical course ought to be extended for five, six or seven years, using exactly the same arguments, and of course it is a question of just where to draw the line and exactly how much material students ought to get in the medical school, which of course is their beginning of learning about medicine. I would not favor increasing the total weeks in medical school, in laboratories and in lecture rooms. We can greatly increase the effectiveness of the time that is spent in our medical schools by a more careful planning of the content of the curriculum.

Second Session, Friday Afternoon

Dr. John S. Bouslog, Denver, Presiding

Address of Dr. Herman L. Kretschmer, President-Elect of the American Medical Association

Dr. Kretschmer: I find in my travels throughout the country a good deal of criticism, a good deal of fault finding, chiefly on the part of men who are not interested in organized medicine and who do not take a very active part. One hears that the American Medical Association does not do anything, that it stands still. I wish to disagree with that statement and to call to your attention just a few things that the American Medical Association has been doing over the past years.

Each day and each week new situations arise that must be met on the spur of the moment. Let me call your attention to the Postwar Planning Committee, the Council on Medical Service and Public Relations and the War Participation Committee. President Paullin this morning told you what his committee is doing and how farsighted it is in its plans for postwar medical service. Through action of the House of Delegates you have established a new Council on Public Relations and Medical Service. Men say to me "Why doesn't that committee do something," being totally unmindful of the fact that you can't appoint a committee by official action of the House of Delegates today and have that committee start to work tomorrow. This committee is represented by men in different fields of practice, from Maine to Florida and from Washington to California. I am sure, with the outstanding men on that committee, that they will be a credit to you and to the American Medical Association; but you will have to give them time to start. There is and has been for some time a drive for a permanent office in Washington and for the establishment of a public relations department in Washington. The public relations technic in medicine is entirely different from that for General Motors, Union Carbide or Bethlehem Steel. I believe the public relations of the Association are being handled perfectly. I have seen at close range this machine work.

It seems to me there is a good deal about public relations technic that we fail to appreciate. I have seen the public relations handled in this organization for a good many years, and I think those of you who may have some doubt in your minds about its workability and its efficiency might do well to discuss some phases of it with the people around this building. I certainly think it would be a mistake to have it run in any other way. I think the headquarters office here watches trends carefully, and the trends, as I said before, change from day to day and from week to week. The Association has been on the alert and has established various committees that are doing a splendid job to meet the situations as they arise.

I should like to say a few words regarding the Board of Trustees. I hear criticism of the Board of Trustees in my meandering through the country. I am not here to toot the horns of the members of the Board of Trustees. You as editors, and you as state secretaries, who have as one of your functions the dissemination of knowledge through your various journals, should be apprised of some of these facts so that when you return to your communities you may correct some of these misconceptions.

I have sat with the Board of Trustees for about twelve years and with the Executive Committee for the same length of time. The Board changes, as you know. Today there is not a single member on that board who was there when I first sat with it

in 1933. The Board has changed completely. Yesterday, as I looked over the Board of Trustees, I was greatly impressed by the fact that there is a general picture of the various types of practice. There are three or four internists on the Board, as rightfully there should be. There are three or four surgeons on the Board, which is fitting and proper. There is an obstetrician and a gynecologist; there is a pathologist, an eye, ear, nose and throat man. There happens to be a urologist. Not only are these men representatives of the various fields of practice but they represent various sections of the country. I am always impressed and always have been with the sincerity with which these men work and the great sacrifices that they make in traveling month in and month out to attend these meetings. They have only one objective. At heart they have the interests of the organized medical profession and the practitioner of medicine. I can assure you they are not a group of nine old men who do nothing but obstruct. They do obstruct when many bizarre proposals come in that are obviously the work of some one with an obsession. Certainly then they obstruct, and that is their function.

I hear little stories going around the country urging that we should have more publicity because we are in bad with the public. I don't believe that statement. At the first meeting of the American Medical Association, practically a hundred years ago, somebody made the statement that they ought to do this or that because he was fearful that the medical profession at that time was in bad with the public.

I ask my patients how they feel about the doctors of medicine. I talk to taxicab drivers, bootblacks, barbers, manicurists and other people. I find little unfavorable criticism of the medical profession. Much of this is nothing but propaganda by self-seeking people. I wish again to emphasize that in my opinion the medical profession stands well with the people in this country; those who say we do not do not know what they are talking about.

I also hear much about the Wagner act. It has had a good deal of publicity. We have all worked hard on it. The combating of the Wagner bill is your job. Each doctor, and this is the message I would like to give you so you may take it back to your constituents, should devote two hours a day to considering this thing and spreading the gospel of what this act means.

The American Medical Association, after all, is your organization. The policies are made by you who elect your representatives in the House of Delegates. Your function, as editors of state journals and secretaries, is to go back and present some of these matters in their right light.

Relationship of Procurement and Assignment Service and State Medical Associations

DR. HAROLD S. DIEHL, Minneapolis, Member Directing Board, Procurement and Assignment Service for Physicians, Dentists and Veterinarians, War Manpower Commission: The Directing Board of the Procurement and Assignment Service has authorized me to express to you, the secretaries of county and state medical societies and the editors of medical journals, its sincere appreciation for the invaluable assistance which you have rendered in the conduct of the work of the Procurement and Assignment Service. Ever since the establishment of this service many of you have devoted a major portion of your time and energy to it. In most states without your cooperation it would have been impossible to do the job and it has become increasingly obvious that the best work has been done where medical societies and Procurement and Assignment Service committees have cooperated most closely and effectively.

When the President of the United States, by executive order, created the Procurement and Assignment Service, he gave to the medical profession of this country the opportunity to itself mobilize, organize and distribute its members in the interests of the war effort. The results would seem to justify this confidence in our profession that we could and would do this effectively.

Medical societies are not expected to, in fact cannot, accept responsibility for the policies or acts of the Procurement and Assignment Service. As an agency of the federal government this service must accept responsibility for its actions. On the other hand the Procurement and Assignment Service was established on the recommendation of the American Medical Association, and its actions and accomplishments will reflect either credit or discredit on the entire profession. That this has been appreciated is evident from the splendid support which medical societies have given to Procurement and Assignment Service committees. To complete the job still confronting us and to merit future opportunities to handle our own affairs will require the cooperation of every medical society and every member of the profession with the Procurement and Assignment Service. The Directing Board appeals to you for this cooperation.

Foremost among the problems with which we are faced is to aid the Army and the Navy in the recruitment of additional medical officers. The unprecedented number of approximately 50,000 physicians are already in service. Yet our armed forces have reached such a size that the ratio of medical officers to the total strength is only about 60 per cent of that which was considered necessary by responsible authorities to provide adequate medical care in time of war.

All of us hear reports of physicians who are not professionally employed or who are making but little use of their special training and skills. In the mobilization of a vast army and navy some of this is inevitable, but as the tempo of the war is increasing not only will the physicians in service be kept thoroughly busy but many more will be needed to provide for our soldiers the medical care to which each and every one of us would insist they are entitled.

The Procurement and Assignment Service has been alert to underutilization of physicians by the armed forces, but I can assure you that the Directing Board now feels that there is a critical and immediate need on the part of both the Army and the Navy for more medical officers. No one anticipates that it will be possible to procure the number which these services feel that they should have, but the Directing Board does believe that 6,000 or possibly 7,000 more physicians could be withdrawn from certain areas of civilian practice without endangering the health of the civilian population.

To secure this number, physicians must come from all areas in which they can be spared, irrespective of state quotas. Every physician who is not essential where he is must be marked "available" by the Procurement and Assignment Service. And, having thus been released, such physicians must be induced to go into service. At this crucial stage in our war effort no community must be permitted to hoard physicians, and no physicians must be permitted to evade their obligations.

Each of you could cite examples of war industries which have attracted thousands or tens of thousands of workers and their families to areas where little or no medical care has been available, or of medical schools with faculties so depleted that they are unable to maintain the quality of medical education which has become standard in this country, or of hospitals with staffs so reduced that the welfare of the patients is prejudiced, or of civilian communities without that minimum of medical care which is essential for safety. With 50,000 physicians withdrawn from the civilian population and an estimated 6 million people who have moved their homes as a result of the war, some shortages of physicians' services are inevitable. It is the responsibility, however, of the Procurement and Assignment Service and the medical profession to keep these unsatisfactory situations to a minimum. Up to now we believe that this has been done. To maintain as satisfactory a record in the future will be more difficult.

The additional physicians to be released for military service must be most carefully selected. War industries and war boom communities are becoming stabilized, but some of these are still without adequate medical care. Medical schools can release few if any more members of their staffs for military service, and some schools must either have additions to their faculties or reduce the size of their student bodies if a satisfactory quality of instruction is to be maintained. Furthermore, the longer the war continues, the more numerous and acute will become the shortages of physicians remaining for civilian medical care. This is inevitable because the number of graduates of medical schools who will be available each year to enter civilian medical practice is far less than the annual loss of civilian practitioners through death and disability.

Policies and procedures to deal with these situations have been developed and agreed on jointly by the Procurement and Assignment Service, the United States Public Health Service and the War Participation Committee of the American Medical Association. In essence, they provide for the cooperative effort of these groups within each and every state to meet these problems. Such combined efforts were important a year ago; they are imperative today.

Basic to all planning for the remaining duration of the war is complete, accurate and current information concerning the qualifications, location and activity of every physician in the United States. This essential inventory of our medical resources can be made only by the cooperative effort of medical societies and the Procurement and Assignment Service.

We need your assistance also in appraising civilian needs for medical service, in formulating plans to meet these needs and in inducing individual physicians to locate in areas where there are shortages of medical care. We have enough physicians in this country to provide essential medical services during the war for both the military forces and the civilian population if we can distribute them properly and utilize their services effectively. To accomplish such distribution and utilization, however, will require our united as well as our individual efforts.

DISCUSSION

Dr. Maxwell Lapham, Executive Officer of the Procurement and Assignment Service: As Dr. Diehl has said, the Army and the Navy do need several thousand more physicians. We have attempted to organize another recruitment program during the past couple of weeks whereby the Army, the Navy and the Public Health Service are meeting with the Procurement and Assignment Service in individual states and going over again the lists of physicians who are declared available for military duty. We have tried this out in Boston and in New York with only a limited degree of success. Unfortunately, many of these men have already been disqualified. Some of them have felt they were disqualified; others feel they are needed where they are, and a good many of them are not acceptable to the Army and Navy. As a consequence, only a few hundred of the several thousand will probably be commissioned. However, I think it is worth while continuing this program on a national basis. As soon as we can organize it we will again call on the states to have the officials of the Army and Navy and the U. S. Public Health Service sit in their offices, go over lists of all available physicians again and have consultations with these physicians called into the Procurement and Assignment office so that we can clear up finally all of the men who have been declared available and who have not applied for commissions. Certainly the available men under 38 years of age should be reported to Selective Service if they have not applied for commissions. The Selective Service headquarters tells us that there are a few doctors now who are being inducted, at least in some instances, thereby speeding up the commissioning of men who have been reluctant to apply for commissions before. It has been estimated that possibly 7,000 men are in the available list at present. This does not mean that 7,000 men are physically and professionally accepted for military service. We shall have to deduct the men who are physically and otherwise disqualified.

I would like to mention the new intern resident program. This, we feel, should begin as soon as possible, because many hospitals are in great need of house staffs. Practically all the residents and interns in the hospitals at present are commissioned in the Army and Navy if they are physically qualified. The time would have come shortly when there would have been no residents available for hospital service except those who were physically disqualified, if the Army and Navy had not cooperated in deferring a certain percentage of interns to serve as residents. We realize that there was not an equitable distribution of interns in the United States. Unfortunately there are not enough interns in the United States to fill approved internships; but we have attempted to distribute them as equitably as possible. We have not assigned interns of accredited schools to hospitals that have not been approved by the Council on Medical Education and Hospitals. Many hospitals which in the past had had two year internships took on double the number when the internship was cut to one year, so if an attempt at distribution had not been made there would have been 500 less interns to distribute in the one year that there had been formerly. We also know that there are about 600 fewer graduates of medical schools who will be available for distribution to civilian hospitals than we had expected this year because the Navy has taken 600 interns into its own hospitals, the Public Health Service has taken 80 into the marine hospitals, so that instead of having 5,200 to distribute we have only about 4,500. As a consequence I can scarcely see how many interns will have to take inferior internships. I would expect that of the 8,000 internships which are approved by the Council on Medical Education and Hospitals approximately half ought to be acceptable to any accrediting agency which might criticize this distribution. Unfortunately, some contracts had to be broken. I have heard, however, from many hospitals, some of which criticized the program most bitterly, that they have been able to send their interns with whom they had contracts to satisfactory internships in other hospitals. I think that within the next few weeks, through the efforts of The Journal, we shall be able to place all of the men who had to seek new internships in hospitals which will be satisfactory to the individual.

The 9-9-9 program for the next nine months, I think, will be much more satisfactory, because with the experience we have had this time in distribution we certainly can improve on it for the October period. With the state committees having a much better insight into the need of local hospitals, their recommendations will be followed as far as possible, so that by the time the schedules are sent out for the next nine months period I think there will be much less difficulty in the distribution of interns and residents to the accredited hospitals in the country.

I might say something about the relocation of physicians. There have been about 2,100 relocations up to the present time in areas where there is said to have been a need. This is a remarkable contribution as far as our state and local committees are concerned, because certainly they have been responsible in large part for this allocation of physicians to the critical areas. We have three groups of people about whom we speak often, and whom we expect to take care of all emergency situations; that is, the physically disqualified practicing physician, the man who is discharged from the Army or the Navy, and the physically disqualified intern and resident. The physically disqualified intern and resident will be used largely, I am afraid, in residencies in the hospitals. We expect some of them, however, to be used for relocation in the critical areas. We should not expect that all physicians who are discharged from the Army and Navy would go back to their homes to practice but that many of them would be interested in going elsewhere. The physically disqualified man who has never been in the service is a very difficult person to move from the place where he is practicing and where he is doing a good job. We therefore have a limited number whom we can select to go to various areas in the country where they are needed. Just recently we have persuaded the Veterans Employment Service of the War Manpower Commission to interview for us physicians who are being discharged from the services, getting information as to whether they want to go back to the place where they did practice before they went into the service, whether they would be willing to go somewhere else, and other pertinent information which will be helpful to us and which we shall send out to our state committees to help them in distributing these men wherever they can be persuaded to go.

Dr. R. B. Anderson, Fort Worth, Texas: Do residents previously rejected for commissions have to reapply for commissions when you ask for them to be deferred? Does that have to show on the form?

Dr. Lapham: If they have been disqualified by the Army since August 1942 they do not have to reapply for a commission. If any one had been disqualified before that time he was supposed to have applied for a commission again, because the standards had been lowered since that time.

Dr. Anderson: When making a request for the deferment of a resident, if he has been previously disqualified for a commission within the past year all we have to do is to so state on the form?

DR. LAPHAM: You do not have to ask for the deferment of a man who has been disqualified by the Army because he does not hold a commission.

DR. ANDERSON: At what time before the expiration of an internship should appeal for deferment for a residency be made?

DR. LAPHAM: It should be made as soon as the man is appointed to the residency. In other words, if you want to start next week requesting us to ask for the deferment of a man who is now serving a junior residency and who is a commissioned officer, to serve as a senior resident beginning next October, you may do it. I would prefer that you wait until possibly the first of March or April, until we can reappraise all the hospitals, so that the state chairman will have in their offices the quotas which are established. If, however, there are instances in which a hospital wishes to know definitely whether it can employ a certain person because he is planning to go to some other hospital, then I think you may ask for the deferment of that man right away for the period beginning October 1.

DR. ANDERSON: If an intern, man or woman, refuses to apply for a commission, is there any use asking for deferment of that physician for residency?

DR. LAPHAM: There is no point in asking for his deferment anyway, if he is not a commissioned officer, as long as you stay within the quota established for that hospital. You have only to ask for deferment on those people who are commissioned either in the Army, the Navy or the Public Health Service, but you should insist on every physically qualified noncommissioned intern or resident applying for a commission.

DR. W. S. LEATHERS, Nashville, Tenn.: I should like to ask a question with regard to the assistant resident who has been deferred until July 1. If that man goes July 1 we shall fail to have our quota between July 1 and October 1. What can we do about that?

DR. LAPHAM: Those men who were commissioned recently and who were deferred for a complete year of residency were deferred largely until July 1. We discussed this problem with the Surgeons General of the Army and the Navy and tried to get them to say that they would defer all of those men to October 1, which would make the program balance and would not leave a gap in house staffs from July to October. They were not willing to do that at this time, but I believe that between now and the first of May we shall be able to work out with the Surgeons General of the Army and the Navy some plan by which some of those men will be deferred until October 1. We felt that we had gotten over one big hurdle when we were able to get a certain number of those men deferred for the nine month period.

DR. T. M. DYE, Clarksdale, Miss.: What is the chance of getting a commission for a man who is physically fit and a little over 45 years of age? In my state, Mississippi, in the beginning of the Procurement and Assignment Service the survey showed that there were only 350 available doctors. Out of those 350 doctors we have already commissioned 300. We have a few men who were in the first world war, over 45 years of age, who would like to get a commission.

DR. LAPHAM: The Army and Navy both, of course, will take men up to and beyond age 45, but they have felt from experience that they would prefer to have the men under 38, particularly, but certainly, generally speaking, only men up to 45. They can use them in practically any field, and the older men they feel they cannot. At the present time in the Army and the Navy there are about 2,900 physicians over 45 years of age. Many of them, of course, are members of the regular army or navy medical corps. However, if the man over 45 has special qualifications which will make him unusually useful to the Army and Navy, they will accept him, and they are quite willing to accept the applications of those men.

DR. RANKIN C. BLOUNT, Louisville, Ky.: I hope that Dr. Lapham will recall that chairmen have been called on to clear for review a great many cases of men who have been rejected for physical reasons. Some of us have the impression that standards have been lowered. However, in my state I have cleared many men for review. I can recall only three who were qualified after examination. Many of the men who have been cleared for review have been put to a great deal of expense of time and have come in with conditions for which they were rejected formerly, and the examination station was told that there should have been no reason for them to come in. For instance, two had heart disease and hernia, and any number of them had arthritis. The first of this week I had the Army procurement officer come to my office with over forty names. I went over my records carefully with him to show cause for rejection. Among that list were three who had been rejected and who had held reserve commissions, who were over 50 years of age. Among that list were seven who had been released from the Army, and it was suggested that we review them. When I got through with the list the procurement officer agreed with me that there certainly was not more than a possibility of three men passing a physical examination again. I didn't mind the time it took to go over the list; it took practically half a day for him and me to clear all of those records, but I am wondering by what process the Army procurement officers are getting some of these names for review and reexamination, whereas on the very face of the records it would seem that unless standards are considerably lowered there would not be a chance of their passing again.

DR. LAPHAM: I am glad you brought that question up, because the Procurement and Assignment Service felt strongly about recommending to the Surgeon General the lowering of physical standards, particularly because we have heard from our state offices, from medical groups, that there were lots of doctors who had been turned down by the Army, who to all intents and purposes were doing a big job at home. Their physical qualifications did not prevent them from carrying a heavy load. In order to get as many doctors as possible for the Army and Navy, we said we would be glad to clear any physically disqualified men they wished to reconsider. The reason we insisted on clearance a second time was that a great many of them have been put in essential positions and we want to be sure that these particular ones were still available for military service. As far as I know, the Surgeon General's Office has gone over that list and has indicated the names of men who they thought might pass a second physical examination. I am sure in some instances they have been wrong. Somewhere between 20 and 30 per cent of these men, whose names have been sent to us for clearance a second time, are now qualified for commissions. So possibly it has been worth while. I think the Army has sent us the names of some 1,800 or 2,000 physicians. We have cleared at the present time something like 1,200 or 1,400, and we hope we can get a few out of the remaining number.

The War Participation Committee as a Coordinating Agency

DR. WALTER F. DONALDSON, Pittsburgh, Chairman of the War Participation Committee of the American Medical Association: War Participation committees do have a function. If you have enough faith that your committee may render a service, you are going to find opportunities to give advice, and that is what a lot of us love to do. When I write to you as chairman of the Association's Committee on War Participation regarding a similar committee in your state, you reply to me "That work is being done by our Committee on Procurement and Assignment." Now, gentlemen, the Committee on Procurement and Assignment in any state medical association has certainly had enough to do in the last two years not to be looking for extra duties. Many of them served a year preceding that appointment as members of a Committee on Medical Preparedness. Undoubtedly their thinking in these directions is pretty well consolidated, and they are not likely to be enthusiastic when our committee or somebody else writes and asks them to get outside of that field.

Our committee has found opportunities to coordinate. Since the last meeting of the House of Delegates we have been called to Washington twice by the directing board of Procurement and Assignment. They had problems which they thought we could help them solve, and we were pleased to respond. I am sure in some instances we did help with the solution of these problems. We accomplished more in that solution in the states where there is a separate Committee on War Participation than we did in the states where there is no committee with

that specific title. I realize that you as secretaries and editors cannot authorize or create such committees, but I would appeal to you to put the pressure on your board of trustees or your council, or whatever you might call that important group, to authorize the creation as soon as possible of a Committee on War Participation; then, at the next meeting of your state association, have that confirmed by your house of delegates. In a number of states the Committee on War Participation can do a tremendous amount of leg work for Procurement and Assignment. As you have heard their difficulties described here today, I think you should be willing to agree that it would not do that situation harm in many states if some new faces entered into the various communities where there are men who need to be smoked out to apply for a commission. It is not only in the large cities that men who should be commissioned are in hiding. There is many a town and city in the United States with a population anywhere from 10,000 to 25,000 that has two or three doctors who might well be spared.

A Committee on War Participation might very well interest itself in the maintenance of war records of their fellow members absent in the service. There is no finer contribution that a county medical society could make to win the affection of a young man. Let him learn either while he is in service or when he comes back that his fellow practitioners on the home front have interested themselves in recording his commission, his service and everything else that goes with that sort of a record. I believe—and other members of my committee believe—that the doctors who are in the service under 35 years of age are going to expect change in the local medical situation when they return to private practice. National committees may readily plan opportunities for graduate study to be available to all returning physicians, and doubtless openings for returning practitioners will be carefully assembled on a national scale for the choice of the unsettled physician. But what of the military doctor who has ideas not yet crystallized in his own mind or whose chief immediate worry anent his return is economic? Who can anticipate the needs that may be amenable to constructive aid or solution better than his fellow practitioners remaining on the home front? How better obtain the answers to such questions than by addressing them to your members before they come home. The responsibility of formulating plans to assist state medical society members returned or returning from military service may well be assigned to your war participation committee.

(To be continued)

WOMAN'S AUXILIARY

Colorado

The Woman's Auxiliary to the Colorado State Medical Society recently issued its yearbook, which has been dedicated "to the Doctor." It contains the report of the Philanthropic and Benevolent Fund, which shows on Sept. 1, 1943 a balance of $5,364.29. The trophy, a silver bowl, goes to Pueblo County for having made the largest per capita contribution to the Emergency Fund. Mrs. Laurence T. Brown of Denver is president.

Georgia

A booklet containing the program for the year's work of the Georgia auxiliary has been compiled by the president, Mrs. Olin S. Cofer of Atlanta. The general theme is "Health for Defense." The auxiliary will stress education on proper nutrition and education about tuberculosis, cancer and venereal disease.

Indiana

The annual convention of the Indiana auxiliary was held in Indianapolis recently, with an attendance of 300. Mrs. James W. Baxter Jr. is the new president. Mrs. Rollo K. Packard, one of the speakers, urged the members to fight the Wagner-Murray-Dingell bill, saying "Since there are more women than men to vote in the next election, what greater opportunity could we have?"

Allen County has two projects for the year—the sponsorship of occupational therapy for the patients of the Irene Byron Sanitarium and the collection of costume jewelry for service men stationed in the Pacific Islands.

Members of the Floyd County auxiliary assisted the Floyd County Medical Society and the Third District Health Department in the annual immunization program.

Michigan

The seventeenth annual meeting of the Woman's Auxiliary to the Michigan State Medical Society was held in Detroit recently. There were 63 delegates and 43 guests registered. Mrs. J. J. Walch is president for 1943-1944. Mrs. Eben J. Carey, national president, spoke of the growth of the auxiliary and explained the Nurses Cadet Corps project.

Ohio

The Belmont auxiliary and medical society contributed sufficient funds to care for a Chinese orphan for a year.

Lucas County auxiliary had a luncheon meeting in October at the Toledo Women's Club, and a panel discussion on "Juvenile Delinquency in Lucas County" was held.

The new project of the Ross County auxiliary, which has made dresser covers and tray cloths for the hospital and done much Red Cross sewing, is the making of surgical bandages from material reclaimed from recapped tires. Members wash material at home and return it cleaned and pressed to the Red Cross rooms.

Cuyahoga's special project is knitting for the Red Cross. Since the beginning of the project 768 articles have been completed.

Oklahoma

A recent issue of the *Journal of the Oklahoma State Medical Association* contains an article by Mrs. F. Maxey Cooper, president of the Oklahoma auxiliary, in which she writes "The year ahead bring us a threefold challenge: (1) We must meet immediate war needs, (2) we must carry on as normally as the time will permit, (3) we must plan for peace and a better world of the future."

Pennsylvania

The Pennsylvania auxiliary will assist in obtaining complete war records of the physicians in service. At the fifteenth annual meeting of the second councilor district of Pennsylvania, held at Reading recently, the auxiliary membership in the district was 541, and $1,175 was given to the Medical Benevolence Fund.

Berks County auxiliary, at a meeting held recently in Reading, voted to pay for the duration all dues, state and benevolence, of all wives in the auxiliary whose husbands are in the service.

Cambria, Erie, Franklin and Lycomings auxiliaries report good meetings. The latter auxiliary purchased three $100 war bonds during the third war loan drive.

The Woman's Auxiliary to the Beaver County Medical Society met at the Penn Beaver Hotel, Rochester, Pa., November 23. Thirty-two members were present. Mrs. A. W. Cully, president, conducted a short business meeting. Mrs. J. L. Whitehill gave a report on the Wagner-Murray-Dingell bill and the activities of the recent state convention at Philadelphia. Mrs. J. A. Stevens, Aliquippa, was appointed chairman of the War Participation Committee. The annual benevolences of the auxiliary were (1) $50 to the Passavant Hospital, (2) $50 to the Beaver County Tuberculosis Sanitarium, (3) a $10 T. B. bond and (4) $5 to the Salvation Army. The speaker was Dr. J. A. Mitchell, who spoke on industrial medicine.

Mrs. Walter Orthner, president of the Pennsylvania auxiliary, said in her address that, "While we, the United Nations, are fighting this great conflict for the four freedoms, we on the home front must continue to fight for the fifth freedom, namely freedom of individual enterprise. If we allow ourselves to become regimented or bureaucratically dominated, we only follow in the footsteps of those dictator nations against which we are battling."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Physicians Needed.—The department of civil service and personnel of San Diego County announces that the positions of superintendent of the San Diego County General Hospital and assistant director of county public health are available. The former position will pay between $490 and $586 a month and the latter $349 to $364. Additional information can be obtained from the department of civil service and personnel, Room 212, Civic Center Building, San Diego 1.——The Los Angeles County Civil Service Commission announces openings for positions as resident physician (urology) in the Los Angeles County Hospital and other county institutions, the applications to be filed on or before January 20. Further details can be obtained from the office of the commission, 102 Hall of Records, Los Angeles 12.

CONNECTICUT

Liberty Ship Named for Harvey Cushing.—A liberty ship named in honor of the late Dr. Harvey Cushing, New Haven (SS 1896), was recently launched at the St. John's Shipyard in Jacksonville, Fla. A U. S. Army Hospital at Framingham, Mass., is also to be named in honor of Dr. Cushing and will be known as the Cushing General Hospital. During World War I Dr. Cushing organized base hospital number 5, the Harvard Medical School and Peter Bent Brigham Hospital unit. The buildings of the new hospital are completed and the hospital is staffed, according to the *News* of the Massachusetts General Hospital. The late Dr. Cushing held the rank of colonel and received the Distinguished Service Medal for his service during World War I.

Medical Students Awarded Prizes.—At the graduation exercises of Yale University School of Medicine, New Haven, December 18, the Ferris Prize in anatomy, given for excellent work in dissection, was divided among three students, Thomas A. Doe, Linden, N. J., James A. Kleeman, Springfield, Ohio, and William J. Wedemeyer Jr., Upper Montclair, N. J. The Campbell gold medal, awarded to the graduating student who secures the highest rank in the examinations of the course, was given to Dr. Donald W. Seldin, Brooklyn; honorable mention went to Dr. William K. Welch, Lebanon, Pa. The Keese Prize, awarded to the student who presents the best thesis, was given to Dr. Charles W. Watson, Tulsa, Okla., with honorable mention to Dr. John J. Milford, Huntsville, Ala. Dr. James L. Bradley, Lyons, N. Y., received the Parker Prize given to the graduating student who has shown during his course the best qualifications for the successful practitioner. The Ramsey Memorial Scholarship, awarded to the student of unquestioned ability and character after completing his first year in clinical medicine, was given to Robert E. Cooke, Windsor, Conn., and the Mendel Prize in physiologic chemistry went to Edward F. Edinger Jr., Bedford, Ind. Forty-nine students received the degree of doctor of medicine, of whom Dr. Bradley, Dr. Ira A. Rashkoff, New York, Dr. Ellen F. Regan, Framingham, Mass., Dr. Seldin, Dr. Welch and Dr. James T. Wolstenholme, Clifton, N. J., were graduated cum laude.

FLORIDA

State Medical Meeting to Be in St. Petersburg.—The seventy-first annual meeting of the Florida Medical Association will be held in St. Petersburg, April 13-14.

Physicians' Committee Appointed for Fee Schedule.—A special committee was recently created to represent the Florida Medical Association when called on by the Florida Industrial Commission (workmen's compensation division) in matters relating to a fee schedule. Members are Drs. Ferdinand A. Vogt, Miami, chairman, Alfred M. Bidwell, Tampa, Frank L. Fort, Jacksonville, Lloyd J. Netto, West Palm Beach, Eugene G. Peek, Ocala, and Wilfred McL. Shaw, Jacksonville.

Personal.—Dr. James Maxey Dell was recently selected mayor commissioner of Gainesville. Dr. Dell, who is beginning his ninth year as a member of the commission, served as mayor commissioner in 1938-1939.——Dr. George N. MacDonell, former health officer of Miami, has been appointed chief of the medical service division of the Dade County Defense Council. Dr. MacDonell succeeds Dr. Gerard Raap, Miami, who recently resigned because of ill health.——Dr. Charles L. Clay, Miami, has resigned as medical superintendent of the James M. Jackson Memorial Hospital, effective November 1. The state medical journal reported that the hospital would be reorganized into two divisions with a medical director and a business administrator.

ILLINOIS

Investigate Sale of Vitamins.—Charges that the state of Illinois had paid thousands of dollars for inferior and useless vitamin pills sold to twelve mental hospitals were to be investigated by federal authorities, newspapers reported, December 16. It was stated that the food and drug administration had requested the state department of public welfare to prepare a report on alleged sales involving hospitals at Alton, Anna, Dixon, Elgin, Moline, Menard, Kankakee, Manteno, Jacksonville, Peoria, Lincoln and Chicago. Payment on a $60,000 contract was ordered stopped until contents of the latest shipment were tested, it was stated. Public welfare officials were reported to have complained that the pills were below specifications and that previous shipments had been received in defective and unusable conditions. The newspaper reports stated that the vitamin sales, exclusive of the $60,000 order, totaled about $75,000. The reports stated that one recent shipment was rejected because it contained "just bottles full of oil" resulting from bad packing, and that another shipment contained only 25 per cent of the vitamin quantity desired.

Chicago

Annual Election of Institute of Medicine.—Dr. Ludvig Hektoen was again chosen honorary chairman of the board of governors of the Institute of Medicine of Chicago at a recent meeting. Dr. William F. Petersen was again named chairman and Dr. Andrew C. Ivy was chosen president. Other officers are Drs. Harry S. Gradle, vice president, George H. Coleman, secretary and Grant H. Laing, treasurer. The newly elected members of the board of governors for terms of given years each are Drs. Bowman C. Crowell, Herman L. Kretschmer and Eric Oldberg.

Meeting of Psychotherapy Council.—The second annual meeting of the Brief Psychotherapy Council will be held at the Ambassador Hotel, January 14-16, under the auspices of the Chicago Institute for Psychoanalysis. The first day will be given over to a discussion of "War Psychiatry" and the second to "Therapeutic Aspects of Psychosomatic Medicine." The third day will be divided between "Psychotherapy for Children" and "Group Psychotherapy." Included among the speakers will be:

Lieut. Col. John M. Murray, M. C., A. U. S., Some Special Aspects of Psychotherapy in the Army Air Forces.
Dr. Alvan L. Barach, New York, Impairment in Emotional Control Produced Both by Lowering and by Raising the Oxygen Pressure in the Atmosphere, with Observations on Normal Young Men Exposed to an Altitude of 15,000 Feet.
Lieut. Col. Roy R. Grinker, M. C., A. U. S., Use of Brief Psychotherapy in War Neuroses.
Molly R. Harrower-Erickson, Ph.D., Montreal, The Use of the Multiple Choice Test in the Military Services.
Samuel J. Beck, Ph.D., Rorschach's Test in Men Discharged from the Military Services.
Frederic L. Wells, Ph.D., Boston, Notes on the Recognition of the Psychologically Marginal Recruit.
Dr. Bela Mittelmann, New York, The Cornell Selectee Index: A Method for Quick Testing of Selectees for the Armed Forces.
Major Milton L. Miller, M. C., A. U. S., Brief Psychotherapy in a Preflight Training Center of the Air Corps.
Capt. Carel von der Heide, M. C., A. U. S., Psychiatric Observations in Two Station Hospitals.
Dr. Edward Weiss, Gastrointestinal Disturbances.
Dr. George E. Daniels, New York, Diabetes.
Dr. Thomas M. French, Asthma.
Dr. Helen Flanders Dunbar, New York, Rheumatic Disease, with Special Reference to Psychosomatic Diagnosis and Treatment.
Dr. Franz G. Alexander, Psychologic Approach to Hypoglycemic Fatigue.
Dr. Irving Edward Liss, New York, Sadomasochism in a Case of Thrombocytopenic Purpura Hemorrhagica.
Dr. Editha Sterba, Grosse Point Park, Mich., Brief Psychotherapy with Orthopedic Cases.
Dr. Marian C. Putnam, Boston, Psychotherapy in a Guidance Center for Infants and Preschool Children.
Dr. Emmy Sylvester, Chicago, Emergency Treatment of Severe Feeding Disturbances.
Fritz Redl, Ph.D., Detroit, Problems in Clinical Group Work with Children.
Kurt Lewin, Ph.D., Iowa City, Experiments on Rapid Changes in Industry.
Dr. Jacob L. Moreno, New York, A Case of Paranoia Treated Through Psychodrama.

LOUISIANA

Dr. Pinto Resigns as Director of Industrial Hygiene.—Dr. Sherman S. Pinto, New Orleans, supervisor of the section of industrial hygiene of the Louisiana State Board of Health, has resigned to accept a commission in the medical corps of the U. S. Army. W. H. Reinhart, engineer in the section, is acting director.

MISSISSIPPI

License Revoked.—The state board of health, acting as a legal court of inquiry, on October 21 revoked the license of Dr. Benjamin F. Johnson II, Jackson, after he was found guilty of "procuring an abortion or abortions that were not necessary to preserve the life of pregnant women."

Personal.—Dr. Harvey F. Garrison, Jackson, has been appointed a member of the advisory committee to the U. S. Children's Bureau, Department of Labor, Washington, D. C. ——Dr. Cyrus M. Shipp, Bay St. Louis, director of the Hancock County Health Department, was recently chosen president-elect of the Mississippi Public Health Association and Dr. John B. Grant, McComb, was installed as president.

MISSOURI

State Cannot Restore License to Muench Without Examination.—Attorney General Roy McKittrick informed the state board of health in an opinion November 30 that it does not have authority to consider the application of Dr. Ludwig O. Muench, St. Louis, for restoration of his medical license, but that it might pass on an application for an examination and issuance of a new license, according to the St. Louis *Globe-Democrat*. Dr. Muench was released on June 6 from the federal prison at Terre Haute, Ind., having served six years on a conviction of using the mails to defraud, newspapers reported (THE JOURNAL, July 31, 1943, p. 959). He was found guilty in 1935 of unlawfully and fraudulently making out, signing and certifying a fraudulent birth certificate. In 1937 his license to practice medicine was revoked by the state board of health for unprofessional and dishonorable conduct. An application for restoration of the license was filed in September, the *Globe-Democrat* reported. It was stated that the attorney general's opinion held that the action of the state board, taken March 10, 1937, revoked Dr. Muench's license permanently and pointed out that there is nothing to prevent the physician from filing application for a new license and that the state board would have authority to consider such an application, subject to present laws and rules and regulations.

NEBRASKA

Newspaper Finances Children's Hospital.—The *World-Herald* has given $100,000 toward the construction of a children's hospital in Omaha to be called the Children's Memorial Hospital and to be erected on ground leased from the University of Nebraska College of Medicine. In addition, stockholders of the *World-Herald* have contributed $15,000 toward the project. The hospital will be entirely independent of the university and not a state institution. A 50 bed unit, expected to cost at least $200,000, will be constructed first. The remainder of this cost above the contribution of $115,000 will be raised by public subscription. According to the *World-Herald* complete development of the plan calls for a 150 bed hospital, and additions to reach this size, it is hoped, will be financed by later donations and bequests. The hospital will be operated by a nonprofit corporation of which A. A. Lowman, W. Dale Clark, Ben H. Cowdery, David Goldman, C. Louis Meyer and Linn P. Campbell, all of Omaha, were the incorporators. Mr. Lowman is president, Mr. Campbell, vice president, Mr. Cowdery secretary and Alvin E. Johnson, Omaha, treasurer. The $115,000 donation carried no stipulation but recommended to the trustees that about 40 per cent of the beds be maintained for children whose parents are unable to pay and that these beds be free to child residents of Nebraska and western Iowa and "that the hospital be kept under private management of a board of trustees solely for the benefit of our community, and that it be entirely undenominational and open to the public generally and that the medical staff be picked impartially from all the doctors in the city." It was stated that the American Academy of Pediatrics would be enlisted in the formation of the staff. The hospital will be located on a site somewhat larger that a city block between 44th and 45th streets and Dewey Avenue and Jackson Street. The *World-Herald* in announcing the gift pointed out that there is not a children's hospital in Nebraska. An attempt will be made to obtain priorities so that plans for the new project may go forward as soon as possible.

NEW YORK

Chief Resident Wins Clough Prize.—Dr. Andrew Kerr Jr., chief resident physician at the Rochester General Hospital, Rochester, on December 17 was named the first recipient of the Harry D. Clough Memorial Prize. The award, which is limited to house officers, is conferred on the basis of excellence of conference case presentations and general support of the weekly clinical conference at the hospital. Its establishment was announced October 22, and the award consists of the $25 cash prize and the inscription of the recipient's name on a special plaque in the conference room. The prize is a memorial to Dr. Clough, assistant medical director of the hospital, who died Oct. 1, 1942 and who worked for the development and improvement of the hospital conferences (THE JOURNAL, Nov. 27, 1943, p. 850).

New York City

Fourth Harvey Lecture.—Karl Paul Link, Ph.D., professor of biochemistry, University of Wisconsin, Madison, Wis., will deliver the fourth Harvey Society Lecture of the current series at the New York Academy of Medicine on January 20. His subject will be "The Anticoagulant from Spoiled Sweet Clover Hay."

Lectures to the Laity.—A group of lectures to the public will open January 14 at the Brooklyn Academy of Music with a talk by Col. Charles M. Walson, M. C., U. S. Army, on "Progress of Medicine in War." Others in the series will include Dr. Benjamin W. Carey, Pearl River, N. Y., "Germs and Germ Fighters," January 21; William M. Malisoff, Ph.D., "The Chemist Looks at Medicine," January 28, and Dr. Louis H. Bauer, Hempstead, L. I., "Medicine Takes to the Air," February 4. The lectures will be sponsored by the Brooklyn Institute of Arts and Sciences, the Medical Society of the County of Kings and the Academy of Medicine of Brooklyn.

Medical and Health Organizations Cooperate in Health Broadcasts.—Public health and medical societies in New York City cooperate with the city's own station WNYC in the program of health talks designed to safeguard and preserve the people's health. According to a release, more than 60 per cent of all health talks heard over New York stations are broadcast over WNYC. On Mondays and Fridays the speaker for the "New York City Health Time" is provided by the New York Academy of Medicine in cooperation with the New York Tuberculosis and Health Association. The Oral Hygiene Committee of Greater New York offers advice on dental matters by prominent members of the dental profession on Tuesdays. Dr. Jerome S. Peterson of the New York City Department of Health gives the Wednesday talks, on community health problems. Thursday morning's speaker is from the Medical Society of the County of New York, and the alternate Saturday discussions are sponsored by the Bronx County Medical Society in cooperation with the Bronx County Tuberculosis and Health Association and the Medical Society of the County of Kings.

Right of Physicians to Prescribe Heavy Cream May Be Withdrawn.—On December 22 the Milk Industry Advisory Committee recommended that the War Food Administration consider withdrawing the right of physicians to prescribe heavy cream for their patients, at present the sole exemption to the nationwide ban on the sale of whipping cream, the New York *Times* reports. The recommendation carried the suggestion that the privilege had been abused and listed a number of specific instances of "alleged abuses" of the right to prescribe heavy cream. The *Times* reported that "one involved the prescription by a physician of heavy whipping cream for seventeen persons in his own family." Many other cases were noted in which the prescribing physician directed his patient to dilute the heavy cream with milk. The *Times* states that all the medical societies in the New York area were informed of the purpose of the meeting at which the action took place and invited to participate in the discussion. None were represented. Public health agencies in the district did attend and advised the committee that the exemption in favor of prescription sales should be reviewed. It was stated that the prescrip-

tion sales created special sanitary problems for handlers, since the mechanized volume production methods used in packaging 19 per cent (light) cream could not be employed and that the system creates a large body of preferred consumers. Quoting a report, it was stated, "Inasmuch as the committee has reviewed opinions that would indicate that heavy cream, in ordinary prescriptive use, has little or no therapeutic or dietetic value superior to cream of lesser butterfat content, the committee is of the opinion that the exemption should be reviewed and probably withdrawn. Among the practices that indicate the wisdom of a review are the common instructions to patients to dilute the heavy cream after buying it and the frequent failure of physicians to prescribe a cream of specific butterfat content. These practices along with specific opinions that the prescription privilege has been outrightly abused are cited in a stenographic record of the committee's last meeting."

PENNSYLVANIA

License Suspended.—The license of Dr. Walter J. Rogan, Dushore, and formerly of Bridgeport, has been suspended because of his violation of that section of the medical practice act which pertains to "habitual intemperance in the use of ardent spirits or stimulants, narcotics, or any other substance . . . which impairs intellect and judgment to such an extent as to incapacitate for the performance of professional duties."

Philadelphia

University News.—A urologic room has been added to the surgical suite of the Hospital of the Woman's Medical College of Pennsylvania through the generosity of Mr. William Goldman. It is outfitted with modern surgical and x-ray equipment for both diagnostic and therapeutic procedures and for teaching and is under the supervision of the department of urology. The department of medicine is conducting a weekly series of postgraduate lectures. First year students are attending a special course of lectures in medical statistics given by Mr. G. St. J. Perrott, chief, division of public health methods, and Antonio Ciocci, Sc.D., U. S. Public Health Service. Richard H. Shryrock, Ph.D., professor of the history of medicine, University of Pennsylvania School of Medicine, who has been made special lecturer in medical history at the Woman's Medical College, is giving a series of weekly lectures on interpretation of medical history.

Goddard Memorial Lectures on Legal Medicine.—The Philadelphia County Medical Society has named its annual series of lectures on legal medicine the "Dr. Herbert M. Goddard Memorial Lectures on Legal Medicine" in honor of Dr. Goddard, who at the time of his death on Nov. 23, 1943 was assistant director of public health of Philadelphia and county coroner. The second series of lectures, which were inaugurated last year, opened on January 7 with a talk by Chief Justice George W. Maxey on "Legal Aspects of Medical Practice." Subsequent lectures will include:

Judge Charles Kenworthy, Unprofessional Conduct: Malpractice, January 14.
John D. Maurer, district attorney of Philadelphia County, and John A. Boyle, first assistant district attorney, Joint Functions of Prosecutor and Coroner, January 21.
John F. Sears of Federal Bureau of Investigation, Scientific Crime Detection, January 28.
Dr. Thomas A. Gonzales, medical examiner of New York City, The Medicolegal Autopsy, February 4.
Dr. Alan R. Moritz, professor of legal medicine, Harvard Medical School, Boston, Special Evidentiary Objectives of Medicolegal Postmortem Investigations, February 11.
Dr. John H. Foulger, director of Haskell Laboratory of Industrial Toxicology, Wilmington, Del., Occupational Hazards and Diseases, February 18.
Irvin Bendiner Esq., Medical Insurance, February 25.
Dr. Edward A. Strecker, professor of psychiatry, University of Pennsylvania School of Medicine, Psychiatry and Law, March 4.
J. W. Holloway Jr., director of the Bureau of Legal Medicine and Legislation, American Medical Association, Chicago, Legal Medicine and the Professions, March 11.

TEXAS

Physicians' Art Work.—Through the courtesy of Mead Johnson & Company, Evansville, Ind., an exhibition of physicians' art work was held in the Rosenberg Library, Galveston, recently. The collection was the work of members of the American Physicians Art Association and included a few pieces from Texas physicians.

Hospital News.—The new Orange City-County Hospital, erected with federal funds at a cost of about $275,000, was recently opened. The one story building has a capacity of 76 beds. Members of the Orange County Medical Society and the Sabine District Medical Society constitute the charter members of the staff. Dr. Thomas E. Kelly, Mount Pleasant, is chief of staff and Dr. Stanley M. Richmond, Marshall, secretary.

UTAH

Personal.—Dr. Donald J. Bourg, Corvallis, Oregon, has been lent to the state of Utah to serve as director of the first councilor district with headquarters at Ogden, succeeding Dr. William P. Scarlett. The district comprises the counties of Weber, Box Elder, Cache, Rich, Morgan and Summit.—— Dr. Paul K. Edmunds, Van Nuys, Calif., has been appointed health officer of district number four of the state department of health with headquarters in Provo.

VERMONT

Changes in the Faculty.—Ferdinand J. M. Sichel, Ph.D., has been promoted to associate professor of physiology at the University of Vermont College of Medicine, Burlington. James E. P. Toman, Ph.D., instructor in physiology, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, has been named instructor in pharmacology and physiology at Vermont, and Miss Nancy Hart has been named research assistant in the same department.

GENERAL

Ashford Award Goes to Norman Topping.—The Bailey K. Ashford Award was presented to Norman H. Topping, P. A. Surg., U. S. Public Health Service, National Institute of Health, Bethesda, Md., for outstanding work in the field of tropical medicine. The presentation was made during the annual meeting of the American Society of Tropical Medicine in Cincinnati in November. In 1941 Dr. Topping went to La Paz, Bolivia, to study the effects of a typhus vaccine developed at the Rocky Mountain laboratory of the U. S. Public Health Service, Hamilton, Mont. He is a member of the United States of America Typhus Commission.

Award for Research in Human Fertility.—The Planned Parenthood Federation of America announces an award of $500 to be given in 1944 to the scientist who has made the most significant contribution to research in human fertility, either in the control of conception or in the correction of sterility. Any scientist anywhere in the world will be eligible for the award. In addition, a number of plaques will be granted to others who have done important work in this field, to signalize their achievements. Judging the merits of each submitted work will be members of the medical committee of the federation, including Drs. Richard N. Pierson, New York, Robert L. Dickinson, New York, Nicholson J. Eastman, Baltimore, Abraham Stone, New York, S. Bernard Wortis, New York, George D. Cannon, New York, Sophia J. Kleegman, New York, Harvey B. Matthews, Brooklyn, and H. McLeod Riggins, New York. The first award, a gift of Mrs. Albert D. Lasker, will be known as the Mary Woodward Lasker Prize. The closing date for the submission of entries for the awards will be June 1, 1944. According to Dr. John H. J. Upham, Columbus, Ohio, president of the Planned Parenthood Federation of America, it is hoped that the competition for the prize will serve to stimulate increased research in medical aspects of human fertility.

Pediatric Board Approves Nine Month Graduate Training.—The American Board of Pediatrics has ruled that three nine month periods of graduate training shall constitute acceptable training instead of the previous requirement of three full years of training. Two of the nine month periods must be spent in a pediatric center or, for a part of the period not to exceed six months, in a recognized hospital for the care of contagious disease. This ruling may be applied only in those instances in which the shorter periods of training were the direct result of the present wartime hospital programs for interns and residents. In issuing the ruling the board is forced to point out that the pressure of emergency conditions can in no way be allowed to lower the standards of its examination. It is contemplated that many candidates will find it necessary to seek additional postgraduate training after the war in order to be prepared properly for the examination. Officers of the board, chosen at its annual meeting November 19, are Drs. Edward B. Shaw, San Francisco, president, Donovan J. McCune, New York, vice president and Charles A. Aldrich, Rochester, Minn., secretary-treasurer. Dr. Alexander A. Weech, Cincinnati, was appointed to fill the unexpired term as a member of the board of Dr. Charles F. McKhann, Detroit, who resigned.

Section Meetings on the Ear, Nose and Throat.—The middle section of the American Laryngological, Rhinological and Otological Society will be held at the Hotel Cleveland, Cleveland, January 12. Speakers will include:

Dr. Robert E. Howard, Cincinnati, A Statistical Study of the Relationship Between Tonsillectomy and Poliomyelitis.
Dr. John R. Lindsay, Chicago, The Cricopharyngeus Muscle in the Production of the Esophageal Voice (Roentgenologic Demonstration).
Drs. Norman L. Hoerr and Fred W. Dixon, Cleveland, The Lymphatic Drainage of the Nasal Accessory Sinuses.
Dr. Albert C. Furstenburg, Ann Arbor, Mich., Restoration of the Facial Nerve.
Dr. Theodore E. Walsh, St. Louis, The Treatment of Laryngotracheobronchitis (with movie).
Dr. Hans Brunner, Chicago, The Present Status of Diagnosis and Management of Ménière's Disease.
Dr. Samuel Iglauer, Cincinnati, Two Cases of Osteomyelitis Treated with Penicillin.
Dr. Thomas E. Carmody, Denver, Facial Injuries Related to the Nasal Sinuses and Oral Cavity.

The eastern section meeting will be held at the Waldorf-Astoria, New York, January 14, at which the following program will be presented:

Dr. Gabriel Tucker, Philadelphia, Laryngofissure for the Treatment of Intrinsic Cancer of the Larynx: Indications, Technic and End Results.
Dr. Paul B. MacCready, New Haven, Conn., Our Changing Conception of Acute Laryngotracheobronchitis.
Dr. Frederick T. Hill, Waterville, Maine, The Management of Aveolar Fistula.
Dr. De Forest C. Jarvis, Barre, Vt., The Part Nutrition Plays in the Production of Clinical Conditions in Otolaryngology.
Lieut. Comdr. Frank L. Horsfall Jr. (MC), U. S. Naval Reserve, Virus Infection of the Respiratory Tract.
Dr. Leroy A. Schall, Boston, Laryngocele Complicated by Cancer: Case Report.
Dr. Edmund Prince Fowler, New York, Head Noises in Normal and Disordered Ears, Significance, Measurement, Differentiation and Treatment.

At the western section meeting in Elks Temple, Los Angeles, January 22-23, the speakers will include:

Dr. Gordon B. New, Rochester, Minn., Advances in the Care of Harelip and Cleft Palate Deformities (with movies).
Dr. Lorenz W. Ruddy, Sacramento, Calif., An Operation for the Correction of Postnasal Cohanal Nasal Atresia in Children.
Dr. Walter F. Mosher, Ventura, Calif., Adamantinoma of the Maxillary Sinus.
Dr. Henry J. Profant, Santa Barbara, Calif., Temporal Arteritis.
Dr. Isidore Friesner, New York, Otologic Problems.
Dr. Russell M. Decker, Pasadena, Calif., Facial Nerve Paralysis Associated with Acute Otitis Media.
Dr. Benton N. Colver, Los Angeles, Sphenoid Sinus Headaches.
Dr. Ben R. Dysart, Pasadena, Modern Viewpoint on Meckel's Ganglion Neuralgia.

The southern section meeting convenes in Atlanta, Ga., January 8, to hear the following program:

Dr. James W. Jervey Jr., Greenville, S. C., Interesting Case Reports.
Dr. Watt W. Eagle, Durham, N. C., Otolaryngologic Aspects of Bromine and Acetanilid Therapy.
Dr. Robin Harris, Jackson, Miss., The Evaluation of Coagulation Time.
Dr. Gilbert E. Fisher, Birmingham, Ala., The Use of Radium in Conduction Deafness.
Dr. James Calboun McDougall, Atlanta, Use of Sulfathiazole Powder with Radical Mastoid Operations.
Col. Robert M. Colbert, M. Q. C., Some E N T Cases in the Service.
Dr. Alton V. Hallum, Atlanta, Dacrycystorhinostomy, Dupuy-Dutemps Technic.
Dr. William D. Stinson, Memphis, Tenn., Further Considerations on the Use of Thiamine Chloride for the Relief of Cardiospasm.

Dr. H. Marshall Taylor, Jacksonville, Fla., president of the national group, will attend all the sessions.

LATIN AMERICA

Health Activities in Latin America.—On November 18 the state department authorized the Institute of Inter-American Affairs to finance a project entitled "Biostatistical and Epidemiological Information in the Other American Republics," to be undertaken by the Pan American Sanitary Bureau. Representatives named from each of the twenty American republics will submit a monthly report to the Pan American Sanitary Bureau of new cases and deaths for infectious diseases, including cholera, yellow fever, bubonic plague, typhus, smallpox, poliomyelitis, malaria, cerebrospinal meningitis, tuberculosis (all forms), typhoid, syphilis, leprosy and yaws. Reports will also be made on other public health data such as hospital facilities and the number of physicians in specified localities. It is contemplated that the representatives will make telegraphic reports to the bureau of all epidemics, outbreaks of diseases and other matters demanding urgent attention. On the basis of the reports received by the bureau, a monthly statistical news sheet will be prepared in English and Spanish and distributed throughout the hemisphere to institutions, governmental agencies and individuals interested in biostatistical and epidemiologic information. In addition, it is expected that the information thus obtained will also be compiled, analyzed, published and distributed to interested parties. The joint project also provides for the translation and publishing of a Spanish edition of the Manual for Coding Causes of Illness. It is planned that 1,000 copies of this manual will be translated and published in the United States and distributed to various persons engaged in public health activities in the American republics, including the twenty representatives appointed by the Pan American Sanitary Bureau in connection with this project. The entire project will be directed and carried out by the bureau with the assistance of the Pan American Committee on Vital Statistics and Epidemiological Information, which is composed of representatives of the Pan American Sanitary Bureau, the United States Public Health Service, the Institute of Inter-American Affairs and the United States Budget Bureau. The committee will act in an advisory and consultative capacity.

Typhus.—In Guatemala a rigid typhus control program has been inaugurated, a feature of which has been the distribution of morbidity cards to physicians and mayors of Guatemala. By means of the cards 126 cases of the disease were reported during August and 108 during September. Public isolation buildings for the care of patients with infectious or communicable disease were constructed in San Cristoban Verapaz and San Juan Chamelco because of outbreaks of typhus there. During July and August 40 deaths from typhus occurred among a group of 1,000 textile factory workers and their families totaling between 5,000 and 6,000 persons.

Personal.—Dr. John W. Seddon, formerly medical officer with the field party in Brazil, returned to the United States on November 14 for reassignment by the War Department. Dr. Eugene H. Payne was transferred from his position as medical officer with the field party in Brazil to the Mica Mines Medical Assistance Program in the Rio Doce Valley, with headquarters in Vitoria. Dr. Gumersindo Sayago recently resigned as head of the Instituto de Fisiologia de Cordoba and professor of physiology of the Faculty of Medicine of Cordoba.

New Construction.—A new 32 bed hospital has been erected in Pucallpa, terminus of a motor highway across the Andes Mountains into Peru's upper Amazon country. The new building serves employees who are engaged in the development of the area for production of rubber, quinine and other economic resources. The hospital is one of a number of hospitals, health centers and dispensaries being established in the territory with the aid of the United States. The cooperative program is providing modern health services in the region for the first time in connection with colonization and development plans. Present plans call for the erection of five hospitals and fifteen dispensaries at convenient localities. A hospital is nearing completion at Iquitos to accommodate 80 patients.

Course in Tuberculosis.—A postgraduate course on epidemiology of tuberculosis will be given March 13-25 in the Instituto de Tisiología of the Faculty of Medicine of Montevideo. Included among the topics will be tuberculous pleurisy, history and clinical forms of tuberculosis, tuberculosis in Uruguay, significance of tuberculosis in diseases without recognizable microscopic tuberculous lesions, epidemiologic significance of organized antituberculosis crusades, antepartum and postpartum antituberculosis care and BCG vaccination, technic and results of bronchography, modern conception of pulmonary isthmus and question of clinical significance of pretuberculosis. Speakers will include Drs. Alberto L. Matteo, Alfonso Crisci, Juan B. Morelli, Aristeo Piaggio, Pablo Purriel, Abelardo Sáenz, Julio C. Carcía Otero, Fernando D. Gómez, Cleopatra Epifanio, Pedro A. Barcia, Alejandro Artagaveytia, Armando Sarno, Abelardo Rodríguez, Ramón E. Marín Pittaluga, Alfredo Nario, Elbio Nattino, Juan J. Crottogini and Gumersindo Sayago. Drs. Víctor Armand Ugón, Américo Fossati and Juan Soto Blanco will be in charge of the surgical sessions. The address of the headquarters for registration is Secretaría del Instituto de Tisiología, Avda. Larranaga 1380.

FOREIGN

Voluntary Mobilization Urged for Influenza Epidemic.—The Ministry of Health has called on all district councils throughout Britain for a total mobilization of health visitors, school nurses, first aid post and rest center staff members and other agencies to combat the epidemic of influenza.

Society News.—Dr. Andrew Fergus Hewat was elected president of the Royal College of Physicians of Edinburgh at the annual meeting Dec. 2, 1943, and Drs. Charles McNeil, Lewis H. F. Thatcher, Alexander Ninian Bruce, David M. Lyon, William A. Alexander and David K. Henderson were elected to form the council for the ensuing year; Dr. Lyon is vice president.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 27, 1943.

Penicillin

Penicillin excites such interest that a recent discussion of it at the Royal Society of Medicine produced a crowded meeting. Prof. Alexander Fleming reported that penicillin was the name he gave fourteen years ago to a substance which he obtained from the mold Penicillium notatum and which had an inhibitory effect on a variety of organisms. But the early filtrates were weak, and concentration was not possible before the brilliant work of Professor Florey and his colleagues in 1940.

Prof. H. W. Florey told the society that pure penicillin inhibited sensitive organisms in dilutions of 1 in 50 to 100 million and produced morphologic effects on the streptococcus in dilutions of 1 in 250 million. The sensitive bacteria, he said, included Streptococcus pyogenes, Staphylococcus aureus, Diplococcus pneumoniae, Streptococcus viridans, Bacillus anthracis and others, but the tubercle bacillus, coliform bacillus, Proteus and Pseudomonas aeruginosa were insensitive. Penicillin is nontoxic and is not inhibited by pus tissue autolysates, blood or serum. It is destroyed by acids and alkalis and, because of the hydrochloric acid in the stomach, cannot be given by mouth. It is rapidly absorbed from muscle and subcutaneous tissue. Rectal administration is ineffective, Professor Florey reported, because penicillin is destroyed by coliform bacilli. The dosage Professor Florey and his associates had used was 15,000 units every three or four hours. It was the only drug he knew of, he said, that gave no need to worry about overdose. The dosage mentioned would cure coccic septicemia. In local administration there must be adequate access to the infected parts. Professor Florey recently went to North Africa, where he cooperated with ten surgeons in the treatment of war wounds. They sewed up infected wounds and fractures, using penicillin locally and parenterally to prevent sepsis. Under ordinary conditions infection made closure of wounds older than six hours impracticable. He showed a film demonstrating the entire operation—from cleaning the limb with soap and water, trimming the skin edges and muscle, inserting tubes and closing the wound to the instillation of penicillin, which in some cases was repeated twice daily for five days. After ten days the stitches were removed. Out of 171 cases, complete union was obtained in 104, subtotal union in 60 and failure in 7. In some cases penicillin with sulfanilamide was blown on the wound.

Other speakers reported good results in the treatment of localized streptococcic and staphylococcic infection by direct application of penicillin. Bone infections, chronic sinuses, abscesses, arthritis, skin infections, infections of the eyes and lips, empyema, acute mastitis and acute infections of the hands have also been treated successfully, it was reported.

Col. Elliott C. Cutler, M. C., A. U. S., described 4 cases of severe fracture, 3 of the femur and 1 of the tibia and fibula, in which initial instillations were given of 10,000 to 20,000 units of penicillin solution. But in spite of continuous intramuscular applications of penicillin, gas forming organisms were detected in the wounds after three or four days and amputation was necessary. In all cases the condition of the patients was then satisfactory. Colonel Cutler felt that penicillin played a major part in the survivals. Gas gangrene antitoxin was also given. Subsequent speakers stressed the need for this.

Major J. N. Robinson, M. C., A. U. S., described the treatment of sulfonamide resistant gonorrhea with penicillin; 93 out of 95 patients were cured by a course of 100,000 units given in 15,000 unit doses every three hours. One of the 2 men not cured responded satisfactorily to a second course. Three patients with gonorrheal arthritis were also treated. One was cured after 200,000 units of penicillin was given intramuscularly in 15,000 unit doses every three hours, but the others, who received only 100,000 units, were not cured.

Ban on Opium

The British government has decided to prohibit opium smoking in British and British protected countries in the Far East which are now occupied by the Japanese occupation. The countries chiefly affected are British Malaya, the Malay States and Hongkong. This step is the climax of a movement begun at the Hague International Conference of 1912, which gave rise to heated controversy with the United States. Thus a cause of disagreement is removed and a contribution is made to Anglo-American cooperation, particularly in the Far East. The final step from restriction to complete prohibition has been rendered possible because in China, from which much opium was smuggled into the territories mentioned, a vigorous campaign has been conducted by the present Chinese government against the cultivation and use of opium. At the stormy opium conference held at Geneva in 1924 and 1925 the American delegation sought to put an end to opium smoking by restricting production of the drug to scientific and medical needs. But there were practical obstacles, political and financial; among these were the production of opium for export by Chinese war lords, opposition by the poppy growing Persians and the fact that the administrations of Malaya and Hongkong derived substantial revenues from the opium monopoly. These considerations led the British and other governments to reject the American proposal, and the United States and China withdrew from the conference. Having rejected a measure which seemed impracticable, the British concentrated on control, but this did not satisfy the public conscience in this country. Fortunately the Chinese government, which refused to send delegates to the Bangkok conference of 1931, at last took active steps against opium smoking and production, while the Japanese army protected and exploited the trade.

Disease Follows Famine in Bengal

The Bengal government, with the assistance of the army, is engaged in fighting epidemics which have broken out in the wake of the Indian famine. Cholera alone has caused about 60,000 deaths during the sixteen weeks beginning July 10, a mortality of 60 to 70 per cent of the persons attacked. Besides cholera and intestinal disease due to unaccustomed foods, smallpox has broken out, and an unprecedented epidemic of malaria, including malignant forms of the disease, has appeared. An advance guard of army doctors, British and Indian, has taken the field to assist local health authorities. The Bengal government has also sanctioned the appointment for three months of 500 medical licentiates and 500 health assistants. It has also provided 24,000 pounds of quinine at controlled prices and 23,000 pounds for free distribution to malaria patients.

The government has taken means to combat famine by the importation of rice. Sir J. P. Srivasta, food member of the viceroy's council, has announced that every one from the viceroy down will be rationed as soon as a plan can be prepared. The central government is undertaking direct relief of victims of the Bengal famine.

Destruction of a National Library

Acting under orders, 600 German soldiers entered the Italian Royal Society's Library at Naples, soaked the shelves and books with gasoline, flung in hand grenades, and, having shot two guards who attempted resistance, kept the fire department at a distance while the library burned. About 200,000 volumes, including a most valuable collection of scientific periodicals and publications of learned societies throughout the world, were destroyed. The Germans also burned the great National Library at Naples. This contained over 1,000,000 volumes and

250,000 listed pamphlets, a collection of more than 4,000 incunabula, many of them beyond price, 10,000 manuscripts and 11,000 autographs and autographed letters of famous people. One of the treasures of the Naples library was the unique collection of Greek and Roman papyri from Herculaneum. The Germans carried off what appealed to them and burned the rest. Other famous libraries have also been pillaged.

BRAZIL

(From Our Regular Correspondent)

Nov. 30, 1943.

Fingerprint Alterations and Clinical Dactyloscopy

With the recent publication of two papers on the pathology of fingerprints and dactylodiagnosis, Dr. Leonidio Ribeiro of Rio de Janeiro and Dr. J. Paulo Vieira of São Paulo have brought to a successful conclusion the scientific work initiated by Israel Castellanos of Cuba, which proved that the patterns of the finger tip skin ridges formed by the dermal papillae are not immutable. In 1907 Dastre of the Academy of Medicine of Paris, seeking to appraise the several systems of human identification, advanced the value of fingerprinting, because, he said, the skin patterns of the finger tips are invariable from intrauterine life until after death. Professor Vervaeks of Brussels declared in 1908 that skin diseases and lesions such as herpes, eczema, impetigo and burns are able to modify the papillary patterns but only temporarily, since they are reestablished with the cure of these lesions. In his widely known Treatise on Criminology in 1931 Edmond Locard affirmed the principle of the immutability of the fingerprints and insisted on the point that they are not modifiable either pathologically or by the will of the individual himself. The first physician to point out that the fingerprints are modified by leprosy was Israel Castellanos of Cuba, who in 1923 proposed the use of the expression "clinical dactyloscopy" to characterize that branch of the study of fingerprints related to alterations of individual dactylograms in different diseases. Dr. Leonidio Ribeiro, professor of forensic medicine and director of the Rio de Janeiro Institute of Civil Identification, began in 1933 a series of researches to demonstrate the frequent alterations of the finger skin patterns as a consequence of lesions of traumatic or pathologic nature. In the first place, Dr. Ribeiro's work confirmed the findings of Castellanos regarding the alterations caused by leprosy and ascertained that these were caused by an abundant cellular infiltration of the derma, which contributed to shortening the height of the papillae. Further investigations showed that certain skin and nervous diseases lessen and even extinguish the papillary ridges—so much so that it is impossible to classify the fingerprint and so identify the individual. The most important scientific consequence of Dr. Ribeiro's findings was the possible use of analysis of fingerprint alterations for the diagnosis of some diseases, a fact which he announced when he began to notice the frequent occurrence of these alterations.

His recent paper includes several interesting cases of diseases discovered through the use of what he calls "dactylodiagnosis." One of them is a case of leprosy discovered through study of the fingerprints alone. An illiterate Negro woman had been fingerprinted when opening an account in a savings bank in 1919. Fifteen years later, when she wished to withdraw her money, she had to be fingerprinted again, but she could not be identified as the true depositor because she presented a total destruction of the characteristic pattern of the papillary ridges. Dr. Ribeiro's help was requested to solve the difficulty, and he was so well acquainted with the picture presented by the fingerprints of leprous patients that he immediately declared the woman leprous without ever having seen her. The diagnosis was later confirmed by a specialist who recognized the patient as affected with leprosy. In another instance fingerprints taken recently at the Institute of Identification showed a partial extinction of the papillary ridges in comparison with a former fingerprint filed at the institute ten years before. Although the man considered himself in good health, an examination demonstrated that he had a severe syphilitic infection, with a positive result for several serologic reactions and a characteristic buccal leukoplasia. Several other cases are described in Dr. Ribeiro's paper, presented with many illustrative documents under the title "Dactylodiagnosis." Although these facts prove that the dogma of the immutability of the papillary patterns must be discarded, which may bring some practical difficulties, Dr. Ribeiro believes that on the other hand they will open new fields of use for this procedure as a distinct help to clinical medicine.

Dr. J. Paulo Vieira's monograph "Pathology of Fingerprints" shows that different physical and chemical actions are capable of so changing or disfiguring the papillary patterns that it is possible in several particular cases to state the occupation of a person by the analysis of fingerprints. This is clearly demonstrated by many illustrations included in the paper.

Caseosis in Leprosy

Dr. Eurico Branco Ribeiro recently reported to the Sociedade Paulista de Lepra a surgical study of nervous caseation in leprosy. The most frequent feature in leprosy is the rosary-like enlargement of the peripheral nerves. Sometimes, however, probably owing to a higher defensive power of the organism, the destruction of bacilli and formation of toxic substances lead to caseous necrosis of the nerves surrounded by granulomatous tissue. The area of caseosis gradually increases and involves nerves, perinerves, subcutaneous tissues and skin. The caseosis of the peripheral nerves in leprosy may be classified in four types. The first type includes cases in which the necrosis involves the skin. The second type includes cases in which there are multiple tumoral formations. The treatment in both these types is surgical removal of the nerve and necrotic tissues. The third group includes cases in which there is invasive necrosis of cutaneous branches of the peripheral nerves. The removal of the entire area is then necessary. In the fourth group, cases of smooth enlargement of the nerve, surgical therapy is limited to removal of the caseous material through an incision of the nerve.

Marriages

ROBERT VIVIAN EDWARDS to Miss June Olivia Ledyard DeWees, both of Coral Gables, Fla., November 18.

ERNEST W. FISHER, Bryson City, N. C., to Miss Mary Howard Crutchfield of Woodsdale, November 12.

RALPH BRETNEY MILLER, Washington, D. C., to Miss Anne Hetherington Upton of Mathews, Va., recently.

PERRY A. MORGAN JR., Ensley, Ala., to Miss Barbara Ruth Callaway of Birmingham, November 5.

HOWARD S. HUSSEY JR., Tarboro, N. C., to Miss Jean Marie Miller of Hazelton, Pa., November 6.

THOMAS S. HARBIN, Rome, Ga., to Miss Margaret Foote Troutman of Atlanta, November 12.

ROBERT R. CROSS to Dr. Margaret M. Conlin, both of Toledo, Ohio, in Salina, Kan., November 5.

THOMAS PATTISON ALMY to Dr. Katharine Whitin Swift, both of New York, November 12.

HENRY GOUGH MONTGOMERY to Miss Martha Barlow, both of Dallas, Texas, November 5.

SAMUEL N. STONE JR., Ardmore, Okla., to Miss Love Porter of Oklahoma City recently.

EDWIN B. STROTHER to Mrs. Margaret Blackwell, both of Dallas, Texas, October 28.

PAUL D. OCHENRIDER, Wilkes-Barre, Pa., to Miss Ruth Ryce of Pittston, November 27.

LEONARD J. MCGEE to Miss Mabel Agnes Doyle, both of Philadelphia, recently.

Deaths

Armin Von St. George ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1914; assistant professor of forensic medicine at the New York University College of Medicine; formerly instructor of pathology at his alma mater; specialist certified by the American Board of Pathology, Inc.; member of the American Association of Pathologists and Bacteriologists; member and past president of the American Society of Clinical Pathologists; a founder and vice president of the New York State Society of Pathologists; served in France during World War I and received two citations for distinguished service; served as assistant director of laboratories and pathologist, Bellevue Hospital; consulting pathologist, Medical Center of Jersey City, Jersey City, N. J.; on the staff of the Lenox Hill Hospital; in 1931 received from the Scientific Exhibit of the American Medical Association a silver medal for excellence of presentation of exhibit illustrating the effects of radium poisoning in the watch dial industry; author of "A Textbook of Pathology for Use in Schools of Nursing"; died November 20, aged 51, of cerebral thrombosis.

Frank A. Kelly ✠ Detroit; Detroit Homeopathic College, 1903; University of Michigan Homeopathic Medical School, Ann Arbor, 1919; president of the Wayne County Medical Society 1923-1924 and for many years treasurer of the society; formerly a member and president of the Michigan State Board of Registration in Medicine; fellow of the American College of Surgeons; a member of the founders group of the American Board of Surgery; veteran of the Spanish-American War; member, medical advisory board number 20, Selective Service; a member and past president of the city board of health; on the staffs of the Evangelical Deaconess Hospital, Receiving Hospital and the Highland Park (Mich.) Hospital; chief of staff, Grace Hospital; died December 10, aged 63, of left ventricular failure.

John Joseph Nutt ✠ New York; University of the City of New York Medical Department, 1897; Cornell University Medical College, New York, 1899; professor of orthopedic surgery at the New York Polyclinic Medical School and Hospital; specialist certified by the American Board of Orthopaedic Surgery, Inc.; member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; at one time superintendent of the New York State Reconstruction Home, West Haverstraw, N. Y.; served on the staffs of the Willard Parker Hospital, New York, Nyack Hospital, Nyack, Long Beach Hospital, Long Beach, the Summit Park Sanatorium, Pomona and the New York Polyclinic Medical School and Hospital, where he died November 16, aged 73, of cerebral hemorrhage and arteriosclerotic hypertensive heart disease.

Charles Wesley Martin ✠ Woodmere, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1921; specialist certified by the American Board of Pediatrics, Inc.; past president of the Nassau County Medical Society; member and past president of the American Academy of Pediatrics; fellow of the American College of Physicians; consultant pediatrician, Long Beach Hospital, Long Beach, Meadowbrook Hospital, Hempstead and South Nassau Communities Hospital, Rockville Centre; attending pediatrician to St. Joseph Hospital, Far Rockaway, and the Nassau Hospital, Mineola, where he died November 16, aged 48, of bronchopneumonia.

John C. King ✠ Pasadena, Calif.; University of Nashville (Tenn.) Medical Department, 1874; fellow of the American College of Surgeons; one of the founders and past president of the San Bernardino County Medical Society; past president of the Riverside County Medical Society and the Southern California Medical Society; president of the California Medical Association in 1910; president of the high school board in Banning for twenty years; past president of the state board of medical examiners; at one time associated with the Indian Service; for many years surgeon for the Southern Pacific Railroad; died October 21, aged 90, of pneumonia.

De Witt Talmage Hunter ✠ Surgeon, Lieutenant Commander, U. S. Navy, retired, Washington, D. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1918; U. S. Naval Medical School, 1931; commissioned a lieutenant (jg) in the medical corps, Naval Reserve Force, on May 3, 1918; became a lieutenant in the medical corps of the U. S. Navy on Aug. 3, 1920 and a lieutenant commander on June 30, 1931; died in the Union Memorial Hospital, Baltimore, October 28, aged 54, of coronary thrombosis.

Orville Reid Allen ✠ Lake Stevens, Wash.; Rush Medical College, Chicago, 1887; past president of the Snohomish County Medical Society; died October 23, aged 78, of angina pectoris.

John Herbert Allin, Fishers, Ind.; Trinity Medical College, Toronto, Ont., 1896; died in Indianapolis November 22, aged 81, of bronchopneumonia and fractured right hip due to a fall.

William S. Bickham, San Saba, Texas; University of Texas School of Medicine, Galveston, 1903; died at Paint Rock in November, aged 67, of myocarditis.

Edward Arnold Burkhardt Sr. ✠ Kansas City, Mo.; University Medical College of Kansas City, 1900; an Affiliate Fellow of the American Medical Association; at one time adjunct professor of obstetrics at his alma mater; on the staffs of the Menorah and St. Luke's hospitals; formerly on the staff of the Kansas City General Hospital; died October 11, aged 66, of hepatic cirrhosis and carcinoma.

Eben Proctor Clapper, Waynoka, Okla.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1901; member of the Oklahoma State Medical Association; died November 28, aged 74, of cerebral hemorrhage and pneumonia.

Paul Baker Clayton, Kansas City, Mo.; University Medical College of Kansas City, 1907; served during World War I; died October 9, aged 67, of arteriosclerosis.

William F. Clevenger ✠ Indianapolis; Medical College of Indiana, Indianapolis, 1894; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; lieutenant colonel in the medical reserve corps, U. S. Army, not on active duty; on the staffs of St. Vincent's, Methodist and City hospitals; died November 20, aged 69, of coronary thrombosis.

La Rue Colegrove, Elmira, N. Y.; University of Buffalo School of Medicine, 1887; also a pharmacist; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; past president of the Chemung County Medical Society; for many years served on the city board of health; member of the board of managers of the Chemung County Sanatorium; consulting surgeon on the staff of the Arnot-Ogden Hospital, where he died November 11, aged 79, of virus pneumonia.

Lisle Leaholme Collins, Webster Groves, Mo.; St. Louis University School of Medicine, 1919; member of the Missouri State Medical Association; on the staffs of the Bethesda General Hospital, De Paul Hospital, Missouri Baptist Hospital and the Evangelical Deaconess Hospital, St. Louis, where he died October 14, aged 50, of embolism.

Annie G. Copeland, Wellesley, Mass.; College of Physicians and Surgeons, Boston, 1887; died September 6, aged 81, of hypertensive heart disease.

John S. Coughlan, Berkeley Springs, W. Va.; College of Physicians and Surgeons, Baltimore, 1908; also a druggist; died in the Washington County Hospital, Hagerstown, Md., November 17, aged 63, of injuries received in an automobile accident.

John H. Craven, Carl Junction, Mo.; Northwestern Medical College, St. Joseph, 1892; died October 27, aged 84, of chronic myocarditis.

Philip Henry Cronin, Houston, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1894; member of the State Medical Association of Texas; on the staff of St. Joseph's Infirmary, where he died November 10, aged 77, of coronary occlusion.

Howard Lewis Cushman ✠ Methuen, Mass.; Boston University School of Medicine, 1908; school physician; formerly member of the school committee and the board of health; member of the Selective Service System; died November 3, aged 57, of acute myocarditis and chronic interstitial nephritis.

Charles Albert Cutting, Tulare, Calif.; College of Medical Evangelists, Loma Linda-Los Angeles, 1940; diplomate of the National Board of Medical Examiners; commissioned a first lieutenant in the medical reserve corps, U. S. Army, on June 11, 1939 and dishonorably discharged on Oct. 10, 1942; died November 8, aged 32, of virus pneumonia.

Harry Preston Findley, Pasadena, Calif.; Rush Medical College, Chicago, 1899; at one time assistant superintendent of

the Massillon (Ohio) State Hospital; died October 29, aged 69, of coronary thrombosis.

Luther Wendall Fowler, El Dorado, Kan.; American Medical College, St. Louis, 1899; member of the Kansas Medical Society; on the staff of the Susan B. Allen Memorial Hospital; died October 18, aged 67, of carcinoma of the right lung.

Archibald E. Freer, Chicago; Rush Medical College, Chicago, 1891; died in the Augustana Hospital November 29, aged 81, of hypostatic pneumonia and acute cardiac failure.

Nicholas Amon Funderburk ✠ Union City, Tenn.; Emory University School of Medicine, Atlanta, 1922; member of the Medical Association of Georgia; died October 30, aged 48, of coronary disease.

Erwin Lowe Gill ✠ Shreveport, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1926; fellow of the American College of Surgeons; member of the staffs of the Tri-State Hospital, T. E. Schumpert Memorial Sanitarium, Shreveport Charity Hospital and the North Louisiana Sanitarium; suffocated October 31, aged 41, when his home caught fire.

Andrew Roy Hackett, Detroit; Drake University College of Medicine, Des Moines, 1912; served on the staff of St. Mary's Hospital; died November 16, aged 65, of coronary occlusion and chronic myocarditis.

Luther Anderson Hedges, Watseka, Ill.; Chicago College of Medicine and Surgery, 1909; member of the Illinois State Medical Society; served on the staffs of the Kankakee State Hospital, Kankakee, and the Iroquois Hospital; died November 15, aged 68, of coronary occlusion.

Harry Graves Hinckley ✠ Merrill, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; served as a member of the local school board, Lincoln county physician and health officer for the city of Merrill; at one time chief of staff, Holy Cross Hospital; died November 11, aged 68, of cardiac deficiency, due to emboli in lung, following an automobile accident.

Vardry Amon Hutton, Florence, Colo.; Hering Medical College, Chicago, 1903; member of the Colorado State Medical Society; served as president of the Colorado Board of Medical Examiners; died October 15, aged 76, of coronary occlusion.

Leonidas B. W. Johnson, Ireland, Ind.; Hospital College of Medicine, Louisville, Ky., 1885; member of the Indiana State Medical Association; died in the Welborn-Walker Hospital, Evansville, November 15, aged 85, of pneumonia.

Frank Weaver Kern, Seymour, Ind.; Louisville (Ky.) and Hospital Medical College, 1908; served during World War I; formerly associated with the Veterans Administration in Cleveland and on the staff of the Veterans Administration Facility, Brecksville, Ohio; died October 29, aged 62, of aortic stenosis.

Fred Edward Koch, Burlington, Iowa; St. Louis College of Physicians and Surgeons, 1901; member of the Iowa State Medical Society; served as Des Moines county physician; died November 13, aged 65, of leukemia.

Otto Edward Kress ✠ Louisville, Ky.; University of Louisville Medical Department, 1921; died October 16, aged 52, of coronary occlusion.

Benjamin Harrison Lamb ✠ Cincinnati; University of Cincinnati College of Medicine, 1915; served during World War I; died November 16, aged 54, of cerebral hemorrhage.

Oscar O. Larsen ✠ Detroit Lakes, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1907; served as president and secretary of the Northern Minnesota Medical Association; physician for the county Selective Service Board and a member of the volunteer medical corps of the council of national defense during World War I; city health officer; on the staff of St. Mary's Hospital; died suddenly, November 7, aged 66, of coronary occlusion.

Murry Herman Levine, New York; Columbia University College of Physicians and Surgeons, New York, 1918; also a pharmacist; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; formerly associate professor of otology at the New York Post-Graduate Medical School, Columbia University; on the staffs of the Harlem, Beth David and Beth Israel hospitals; died in the Barnes Hospital, St. Louis, November 19, aged 48, of bronchogenic carcinoma.

James Mary Joseph Allen Levins, Houston, Texas; Licentiate of the Apothecaries' Hall, Dublin, Ireland, 1913; at one time a medical officer in the British navy; died in the Hermann Hospital, November 10, aged 57, of diabetes mellitus.

Harold Barker Loughery, Muskegon, Mich.; University of Illinois College of Medicine, Chicago, 1922; member of the Michigan State Medical Society; president of the Muskegon County Medical Society; fellow of the American College of Surgeons; fellow in surgery at the Mayo Foundation, Rochester, Minn., from October 1927 until October 1930; on the staffs of the Mercy Hospital and the Hackley Hospital, where he died November 22, aged 47, of cerebral hemorrhage.

Lorne Taylor MacDougall ✠ Tunkhannock, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1919; served as medical director of Wyoming County; died September 5, aged 49.

John Joseph Madden, Brooklyn; Harvard Medical School, Boston, 1909; member of the Medical Society of the State of New York; also a pharmacist; specialist certified by the American Board of Otolaryngology; on the staffs of the Brooklyn Eye and Ear and St. Mary's hospitals, Brooklyn, and St. Vincent's Hospital, New York, where he died November 23, aged 61, of chronic coronary thrombosis.

Edward W. Martin, Kansas City, Mo.; University Medical College of Kansas City, 1901; member of the Missouri State Medical Association; served as local surgeon for the Missouri Pacific Railroad Company and the Chicago, Milwaukee and St. Paul Railroad; died in the Research Hospital November 9, aged 67, of cardiac failure and coronary occlusion.

Charles Ernest McNiel, Pennington Gap, Va.; Kentucky School of Medicine, Louisville, 1904; member of the Medical Society of Virginia; surgeon for the Louisville and Nashville Railroad; died October 26, aged 71.

James Herschel McNeill ✠ New Castle, Ind.; University of Nashville (Tenn.) Medical Department, 1906; at one time coroner of Morgan County; on the staff of the Indiana Village for Epileptics; died November 14, aged 63, of coronary disease.

Albert Baptiste McQuillan ✠ East St. Louis, Ill.; Washington University School of Medicine, St. Louis, 1903; past president of St. Clair County Medical Society; fellow of the American College of Surgeons; served during World War I; on the staff of St. Mary's Hospital, where he died November 12, aged 63, of myocarditis.

Theodore M. Moll, Detroit; Pulte Medical College, Cincinnati, 1891; served on the staff of the Monroe Hospital, Monroe, Mich., from 1924 to 1940; died November 20, aged 74, of arteriosclerosis.

George Roger Myers, Hurlock, Md.; University of Maryland School of Medicine, Baltimore, 1902; member of the Medical and Chirurgical Faculty of Maryland; on the associate staff of the Cambridge-Maryland Hospital, Cambridge, where he died October 7, aged 69, of cerebral hemorrhage.

Walter S. Nash, Knoxville, Tenn.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1889; member of the Tennessee State Medical Association; veteran of the Spanish-American War; medical examiner for the draft board during World War I; at one time alderman and councilman; served as chief of staff, Knoxville General Hospital; surgeon for the Southern Railway and the Louisville and Nashville Railroad; died November 13, aged 77, of pneumonia.

Little Berry Neal ✠ Jackson, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; member of the Radiological Society of North America, Inc.; served during World War I; on the staff of the Mississippi Baptist Hospital, where he died December 1, aged 66, of coronary thrombosis.

Homer Lee Nickell, Morehead, Ky.; University of Louisville School of Medicine, 1910; served during World War I; formerly a member of the state legislature; died November 9, aged 57, of coronary occlusion.

Paschal J. Park, Cabot, Ark.; American Medical College, St. Louis, 1897; veteran of the Spanish-American War; died in the Army and Navy General Hospital, Hot Springs National Park, September 18, aged 76, of heart disease and generalized arteriosclerosis.

Douglas Amos Payne, Chicago; College of Physicians and Surgeons, Baltimore, 1887; member of the Illinois State Medical Society; at one time instructor in ophthalmology at the Illinois Medical College; died November 24, aged 86, of acute cardiac failure due to decompensated arteriosclerotic myocarditis.

Ewing Dwight Piper, Shadyside, Ohio; Starling Medical College, Columbus, 1905; member of the school board; died in the Martins Ferry Hospital, Martins Ferry, November 10, aged 65, of decompensated arteriosclerotic heart disease and cirrhosis of the liver.

James Albin Potts ✠ Pittsburgh; Western Reserve University Medical Department, Cleveland, 1879; died in the Shadyside Hospital November 15, aged 91, of cerebral hemorrhage.

Charles W. Ritter, McLean, Ill.; St. Louis University School of Medicine, 1903; member of the Illinois State Medical Society; member of the staff of St. Joseph's Hospital, Bloomington, where he died December 4, aged 66, of cerebral hemorrhage, arteriosclerosis and diabetes mellitus.

Frank Shackelford, Hope Hull, Ala.; Medical College of Alabama, Mobile, 1898; member of the Medical Association of the State of Alabama; died in the Fitts Hill Hospital, Montgomery, November 7, aged 75, of nephritis.

Joseph Lawrence Smith, Brooklyn; New York Homeopathic Medical College and Flower Hospital, New York, 1930; member of the Medical Society of the State of New York; died in the Adelphi Hospital November 12, aged 37, of a cerebral embolus following an appendectomy.

Matthew Thomas Smith, Chicago; Loyola University School of Medicine, Chicago, 1924; member of the Illinois State Medical Society; assistant clinical professor in surgery at his alma mater; senior on the surgical staff of the Mercy Hospital, where he died November 9, aged 45, of organic and rheumatic heart disease.

Archibald Alfred Southwick, Kendallville, Ind.; University of Wooster Medical Department, Cleveland, 1912; member of the Indiana State Medical Association; served with the American Expeditionary Forces during World War I; died in the McCray Memorial Hospital November 4, aged 58, of pneumonia.

CAPT. ROBERT M. FULLER
M. R. C., U. S. Army, 1915-1943

Florence I. Staunton ✠ Peekskill, N.Y.; Woman's Medical College of Pennsylvania, Philadelphia, 1905; an Affiliate Fellow of the American Medical Association; formerly on the staff of the Faxton Hospital, Utica; physician for St. Peter's parochial school; died in a Bangor, Maine, hospital October 16, aged 74, of coronary thrombosis.

Josiah S. Steiner, Bluffton, Ohio; Cleveland Homeopathic Medical College, 1898; served in France during World War I; died November 21, aged 71, of coronary disease.

William E. Stiles, East Northport, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1888; also a dentist; died recently, aged 79, of bronchopneumonia.

Gerald Hayden Stoner, Valparaiso, Ind.; American College of Medicine and Surgery, Chicago, 1905; at one time assistant professor of minor surgery at his alma mater; formerly served as county coroner and as a member of the city council; member of the board of education; on the staff of the Porter Memorial Hospital; died November 2, aged 69, of nephritis.

Walter Storm, Hope, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; died October 29, aged 74, of chronic myocarditis, hypertension and gangrene of the right leg.

Lyman Beecher Swormstedt, Washington, D. C.; Hahnemann Medical College and Hospital of Philadelphia, 1877; one of the founders and for many years on the staff of the National Homeopathic Hospital; died November 11, aged 90, of carcinoma of the prostate and bladder.

George Gordon Taylor, Maywood, Ill.; Northwestern University Medical School, Chicago, 1902; died November 13, aged 73, of cerebral hemorrhage.

Wilbur Andrew Uehren ✠ Aurora, Ill.; Rush Medical College, Chicago, 1901; at one time health commissioner of Aurora; on the staffs of the Copley Hospital, St. Charles Hospital and St. Joseph's Hospital where he died November 20, aged 65, of myocardial infarction due to coronary occlusion.

Daniel Frederick Wallenfelsz, Pleasant City, Ohio; Starling Medical College, Columbus, 1902; member of the Ohio State Medical Association; a director of the Old Pleasant City Bank; died in St. Francis Hospital, Cambridge, November 23, aged 72, of uremia.

John Bunyan Walling, Binghamton, N. Y.; Long Island College Hospital, Brooklyn, 1892; on the staff of the Binghamton City Hospital; died November 18, aged 76, of cerebral hemorrhage.

William T. Whaley, Glenwood, Ark.; Memphis (Tenn.) Hospital Medical College, 1898; died in a Hot Springs National Park hospital November 26, aged 78.

William Norman Williams ✠ Tabor City, N. C.; Medical College of Virginia, Richmond, 1924; owner of the Williams Clinic Hospital; died in the Columbus County Hospital, Whitesville, October 25, aged 46, of injuries received in an automobile accident.

Arthur L. Winston, Colorado Springs, Colo.; Memphis (Tenn.) Hospital Medical College, 1887; member of the Colorado State Medical Society; died October 31, aged 79, of senility.

Samuel Paul Wise ✠ Americus, Ga.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; served with the American Expeditionary Forces during World War I; at one time part owner of the Wise Sanitarium, Plains; visiting surgeon on the staff of the Americus City Hospital; died, November 3, aged 59, of cerebral hemorrhage.

LIEUT (jg) AARON S. MICHELSON
(MC), U.S.N.R., 1915-1943

George Lawrence Wolf ✠ San Francisco; College of Physicians and Surgeons of San Francisco, 1917; on the staffs of St. Joseph's Hospital and the French Hospital, where he died recently, aged 61, of carcinoma of the pancreas with metastases.

George R. Wycoff, McKees Rocks, Pa.; Kentucky School of Medicine, Louisville, 1892; member of the Medical Society of the State of Pennsylvania; died in Pittsburgh November 4, aged 77, of acute heart disease.

KILLED IN ACTION

Robert Morton Fuller, New York; Emory University School of Medicine, Atlanta, 1939; began extended active duty as a first lieutenant in the medical reserve corps, U. S. Army, on July 16, 1941 and was assigned to the 51st Infantry, Fourth Armored Division at Pine Camp, N. Y.; promoted as a captain; reported missing in action Nov. 8, 1942; aged 28; officially declared dead by the War Department Nov. 8, 1943.

Aaron Sydney Michelson, Cincinnati; University of Cincinnati College of Medicine, 1941; served as chief resident of the Jewish Hospital and assistant clinician in general medicine at the Cincinnati General Hospital; lieutenant (jg), U. S. Naval Reserve; reported missing in action, Nov. 13, 1942, while a medical officer aboard the destroyer U. S. S. *Laffey* following the third battle of Savo Island; aged 28; officially declared dead by the Navy Department on Nov. 14, 1943.

Correspondence

ORCHIECTOMY IN THE TREATMENT OF PROSTATIC CANCER

To the Editor:—Exception may be taken to two statements made by Dr. H. L. Kretschmer (THE JOURNAL, Nov. 20, 1943, p. 755) in the report of his interesting group of patients with cancer of the prostate treated by bilateral orchiectomy. Dr. Kretschmer states first, "There seems to be a prevailing notion that, once a diagnosis of cancer of the prostate has been made, all that is necessary to effect a cure is to perform an orchiectomy." All will admit that a notion is hardly a proper subject for scientific discussion. It is of interest to us that this notion is prevailing, but it is not clear among what group it is prevalent. Certainly not among those who have read and understood the literature, which is extensive, relating to castration for prostatic cancer. So far as I am aware, no one has made any claim that any patient has been cured of prostatic cancer by this operation in the reports from the many urologists who have used it. In all of the papers from this laboratory emphasis has been placed on the large number of "failure cases." Properly many years must elapse before a cure of cancer can be claimed, although several of our patients are free from clinical and chemical evidence of the disease more than four years after orchiectomy.

Dr. Kretschmer writes further "From a review of the table it is evident that the results are anything but desirable." This table summarizes the findings in 11 cases of prostatic cancer in which orchiectomy was performed; in 10 of them at some time, in addition, transurethral resection of the prostate was done, which in case 2 was omitted. It is true that the results obtained were not spectacularly good in this series; 3 of the patients died within eleven months after orchiectomy, and others obviously have an advancing carcinomatosis. No description is given of the weight or microscopic appearance of the testes or of titers of sex hormones excreted in the urine, so that it is impossible to say whether the excised glands were producing effective amounts of androgen in these cases; when the testes are physiologically atrophic, no benefit can be expected from orchiectomy. However, in the "report of cases" it may be gleaned that there was temporary bettering in 8 cases following orchiectomy, such as improvement in appetite, in gain of weight, in decreased pain or in sense of well being; only in cases 3, 5 and 8 apparently was there no improvement. Obviously prostatic resection contributed to some of the improvement, but in 1 of the cases in which temporary benefit was obtained, this was omitted. I agree that the results in this small series were not optimal but believe that it is unjustifiable to say that the effects are undesirable when improvement, even temporary, occurs from any treatment in advanced cancer.

Since the endocrine treatment of prostatic cancer by both orchiectomy and estrogen administration was introduced by C. V. Hodges and me (*Cancer Research* **1**:293 [April] 1941) and since there seem to be misconceptions concerning its efficacy, it may be clarifying to state our present position (*Science* **97**:541 [June 18] 1943): "It must be emphasized that the results are not uniformly successful and that they fall into three groups; one group, less than 5 per cent of patients received no or slight benefit from endocrine treatment; the other groups, larger and nearly equal in number, obtained respectively an improvement pronounced but unsustained (less than eighteen months) or a pronounced and more prolonged regression of the disease. The improvement is greater than palliation, when technically the patient is merely made more comfortable in the face of advancing disease. The benefit in prostatic cancer often includes disappearance of the tumor, at least in the gross, and is considered as neoplastic inhibition. In clinical patients, castration seems to give somewhat better results than occur from estrogenic therapy." Dr. Richard Chute has ably presented a useful concept in stating that if nothing more was accomplished from the endocrine treatment of advanced prostatic cancer than a decrease of man-pain hours, which often occurs, the results would be clinically desirable at the present. Often greater benefits occur.

CHARLES HUGGINS, M.D., Chicago.

[NOTE.—The letter of Dr. Huggins was submitted to Dr. Kretschmer, who replies:]

To the Editor:—Dr. Huggins takes exception to my statement that there seems to be a prevailing notion that, once a diagnosis of cancer of the prostate has been made, all that is necessary to effect a cure is to perform an orchiectomy. I made this statement based on my personal experience with internists, surgeons, urologists and general practitioners who consulted me because of the failure of castration in their patients to effect a cure of cancer of the prostate. Several patients have consulted me for the specific purpose of having an orchiectomy, having been told by their physicians that such an operation would cure their cancer. Again, I wish to state that this is my personal experience.

As I stated in my paper, it is not my intention to belittle the extensive studies that have been done on this subject by the Gutmans, Huggins and others but simply to report my experience with this treatment for cancer of the prostate.

I agree with the statement of Dr. Huggins that the results obtained were not spectacularly good. As Dr. Huggins quite correctly stated, 3 of the 11 patients are dead. A review of the chart discloses that in 5 patients there is anything but betterment; 1 patient complains of pain in the hips and legs with swelling of the legs and loss of weight; 1 patient complains of moderate pain in the sacral region extending down the leg; in 1 patient there is no change in the leg pains; 1 patient is bedridden with a loss of weight and increase in the bone metastases and now requires frequent doses of morphine, and the fifth patient has painful urination with gross bleeding; 2 of the remaining 3 patients show improvement, and the third patient states that he "feels well." The orchiectomies on the 3 patients who show some improvement and a state of well-being are of recent origin, having been performed four, seven and eleven months ago.

I have undertaken no scientific research on the question of how or why physicians, surgeons, urologists and the public acquire the impression that orchiectomy cures cancer. This I leave to others.

HERMAN L. KRETSCHMER, M.D., Chicago.

ELECTROCARDIOGRAPHIC CHANGES IN ABDOMINAL DISEASE

To the Editor:—In their article entitled "Changes in the Electrocardiogram Induced by Acute Pancreatitis" (THE JOURNAL, Dec. 4, 1943, p. 892) Gottesman, Casten and Beller emphasize the diagnostic value of the electrocardiogram in this condition. They conclude that electrocardiographic changes are one of a triad which "should establish the clinical diagnosis of acute pancreatitis." This conclusion implies a specificity for such electrocardiographic abnormalities which is at variance with the experience of others and myself and which is contradicted by the authors' recognition that "changes in the electrocardiographic pattern have been observed in a variety of abdominal conditions particularly with those associated with disease of the biliary system."

Fitzhugh and Wolferth (*Ann. Surg.* **101**:478 [Jan.] 1935) have presented several cases with gallbladder disease exhibiting striking electrocardiographic abnormalities similar to those encountered by Gottesman and his collaborators, which disappeared following cholecystectomy. In 1938 during the tenure

of a fellowship in the cardiographic laboratory at the Mount Sinai Hospital in New York, I carried out a study in collaboration with Dr. Arthur M. Master on electrocardiographic changes following major abdominal surgery. Electrocardiograms were taken in a series of 23 cases before and during the operation, and daily postoperatively. Following a variety of abdominal operations, electrocardiographic changes occurred in 18 of 23 middle aged and elderly men. The most frequent changes were depression of the ST segments and inversion of T waves in any or all leads, abnormalities identical with those described by Gottesman and his associates in their cases of pancreatitis. These changes usually appeared during the first two days postoperatively and persisted for a varying time. The electrocardiogram in most cases reverted to its control preoperative appearance by the time of discharge from the hospital. These abnormalities occurred in normal subjects as well as in those with clinical or electrocardiographic signs of heart disease and bore no relation to the type of operation, anesthesia or operative shock. Changes occurred in cases in which the postoperative course was normal but tended to be more noticeable in subjects with severe postoperative complications. These observations do not confirm the "control" studies of Gottesman, Casten and Beller, in which the electrocardiogram was not interpreted as abnormal in any patients after extensive surgical procedures on the gastrointestinal tract.

It is noteworthy that postoperative electrocardiographic changes, although frequently profound, are not usually associated with any clinical evidence of cardiac involvement. Postmortem examination in 3 cases we studied showed no evidence of recent myocardial damage, although definite depression of the ST segment and T wave inversions were present in 2 of these cases. In 3 of the cases of pancreatitis cited by Gottesman, Casten and Beller an electrocardiographic diagnosis of acute myocardial infarction was made which was not substantiated by clinical findings or autopsy (case 2). It is important that electrocardiographic findings of the type described by the authors and observed by Fitzhugh and Wolferth and by myself should not be mistaken for coronary closure. Differentiation from coronary occlusion is usually possible by the absence of Q wave patterns and elevated ST segments which are typically observed in acute coronary occlusion (Master, A. M.; Gubner, R. S.; Dack, Simon and Jaffe, H. L.: *Arch. Int. Med.* **67**:647 [March] 1941). The elevated ST segment cited in case 6 presented by Gottesman and his associates was probably different in origin from the changes noted in their other cases. Such elevation of the ST segment in all leads is typical of pericardial involvement, and it was remarked that "the pericardial cavity contained 50 cc. of brownish red fluid." Cardiac involvement in this case was further evidenced by the presence of gallop rhythm.

These criticisms do not detract from the interest of the findings described by Gottesman, Casten and Beller. They do, however, indicate that little or no specific significance is to be attached to such electrocardiographic abnormalities and that, accordingly, the value of the electrocardiogram in the differential diagnosis of pancreatitis may seriously be questioned. Depression of the ST segment and T wave changes have been observed in a great variety of conditions. It is probable that more than one factor plays a part in their genesis in acute abdominal disorders, e. g. shock with attendant reduced coronary flow, serum electrolyte changes and viscerocardiac reflexes. Depression of the ST segments and T wave changes merely indicate a metabolic disturbance in the myocardium, not necessarily irreversible. Such changes relate particularly to the subendocardial region of the left ventricle, which is most vulnerable to metabolic disturbances, for reasons presented elsewhere (Gubner, R. S., and Ungerleider, H. E.: *Arch. Int. Med.* **72**:196 [Aug.] 1943).

RICHARD S. GUBNER, M.D., Brooklyn.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, Jan. 1, page 57.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, Feb. 21-24. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery.

ARKANSAS: * March. Sec., Dr. D. L. Owens, Harrison.

CALIFORNIA: *Oral.* San Francisco, Jan 20. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

CONNECTICUT: * *Medical.* • *Written.* Hartford, March 14-15. *Endorsement.* New Haven, March 28. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, March 13-14. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Written.* Dover, Jan. 11-13. *Endorsement.* Dover, Jan. 18. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

FLORIDA: * Jacksonville, June 26-27. Sec., Dr. W. M. Rowlett, Box 786, Tampa.

IDAHO: Boise, Jan. 10. Dir., Bureau of Occupational Licenses, Mrs. Lela D. Painter, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, Jan. 18-20. Supt. of Registration, Department of Registration and Education, Mr. Philip Harman, Springfield.

INDIANA: Indianapolis, May 2-4. Sec., Board of Medical Registration and Examination, Dr. W. C. Moore, 301 State House, Indianapolis.

KANSAS: Kansas City, Feb. 2-3. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

MAINE: Portland, March 14-15. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, March 14-17. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MINNESOTA: * Minneapolis, Jan. 18-20. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSOURI: *Reciprocity.* Jefferson City, Jan. 24. Sec., State Board of Health, Dr. James Stewart, State Capitol Bldg., Jefferson City.

MONTANA: Helena, April 3-5. Sec., Dr. O. G. Klein, First National Bank Bldg., Helena.

NEVADA: *Endorsement.* Carson City, Feb. 7, Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, March 9-10. Sec., Board of Registration in Medicine, Dr. D. G. Smith, State House, Concord.

NEW JERSEY: Feb. 15-16. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: * Santa Fe, April 10-11. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NEW YORK: Albany, New York, Buffalo and Syracuse, Jan. 24-27. Sec., Dr. R. R. Hannon, Education Bldg., Albany.

OREGON: * Portland, Jan. 26-29. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland.

SOUTH DAKOTA: * Pierre, Jan. 18-19. Dir., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Pierre.

WASHINGTON: * Seattle, Jan. 10-12. Dir., Department of Licenses, Mr. Thomas A. Swayze, Olympia.

WYOMING: Cheyenne, Feb. 7-8. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: Feb. 12. Address State Board of Healing Arts, 250 Church St., New Haven.

DISTRICT OF COLUMBIA: Washington, April 17-18. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington.

FLORIDA: Gainesville, June 8. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

IOWA: Des Moines, Jan. 11. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MICHIGAN: Ann Arbor and Detroit, Jan. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

NEBRASKA: Omaha, Jan. 11-12. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln.

NEW MEXICO: Feb. 7. Sec., Miss Pia Joerger, State Capitol, Santa Fe.

OREGON: Portland, March 4. Sec., Board of Higher Education, Mr. C. D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, Feb. 16. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Venereal Diseases: Quarantine of Infected Person "Confined or Imprisoned in Any Municipal Prison."—Under a Florida statute a person confined or imprisoned in any municipal prison is subject to being examined and treated for venereal diseases by the health authorities or their deputies. Such a person found infected with venereal disease may be compulsorily detained and treated to prevent the dissemination of the infection. The state board of health is vested with authority to make rules and regulations concerning the isolation and treatment of persons infected with venereal diseases. Acting by virtue of this statute the state board of health adopted regulations, one of which authorizes the health officer to quarantine infected persons either on the premises in which they live or in any other place, hospital or institution in the jurisdiction that may have been provided, and, if no such place has been provided, confinement in the county or city jail under quarantine may be resorted to.

The petitioner, a woman, was charged with being drunk and disorderly and was confined in the county jail awaiting her trial before a justice of the peace, who set her appearance bond at $500. While so confined she voluntarily submitted to a physical examination which indicated that she was infected with gonorrhea. Thereon the state health officer ordered her quarantined in the county jail pending transfer to one of the quarantine hospitals operated by the state board of health for the isolation and treatment of persons infected with venereal diseases. The petitioner then brought habeas corpus to secure her release from detention under the quarantine. The trial court denied the petition for a writ of habeas corpus and ordered that she remain under quarantine under the supervision of the state board of health for treatment for said disease until she was cured and that on her cure the court would then consider an application to reduce the bond on the charges pending before the justice of the peace. The petitioner then appealed to the Supreme Court of Florida.

The sole question presented concerned the validity of the state statute and the rules and regulations of the state board of health under which the petitioner was quarantined. Generally speaking, said the Supreme Court, rules and regulations necessary to protect the public health are legislative questions, and appropriate methods intended and calculated to accomplish these ends will not be disturbed by the courts. All reasonable presumptions should be indulged in favor of the validity of the action of the legislature and the duly constituted health authorities. But the constitutional guaranties of personal liberty and private property cannot be unreasonably and arbitrarily invaded. The courts have the right to inquire into any alleged unconstitutional exercise or abuse of the police powers of the legislature, or of the health authorities in the enactment of statutes or regulations, or the abuse or misuse by the boards of health or their officers and agents of such authority as may be lawfully vested in them by such statutes or regulations. However, the preservation of the public health is one of the prime duties resting on the sovereign power of the state. The health of the people has long been recognized as one of the greatest social and economic blessings. The enactment and enforcement of necessary and appropriate health laws and regulations is a legitimate exercise of the police power which is inherent in the state and which it cannot surrender. The constitutional guaranties of life, liberty and property, of which a person cannot be deprived without due process of law, do not limit the exercise of the police power of the state to preserve the public health so long as that power is reasonably and fairly exercised and not abused. The legislative authority in this legitimate field of the police power, like as in other fields, is fenced about by constitutional limitations, and it cannot properly be exercised beyond such reasonable interferences with the liberty of action of individuals as are really necessary to preserve and protect the public health. It has been said that the test, when such regulations are called in question, is whether they have some actual and reasonable relation to the maintenance and promotion of the public health and welfare, and whether such is in fact the end sought to be attained. Every reasonable presumption must be indulged not only in favor of the validity of legislative action in this important field but also in favor of the validity of the regulations and actions of the health authorities. As was said in 12 R. C. L. 1271:

> Health regulations are of the utmost consequence to the general welfare, and, if they be reasonable, impartial and not against the general policy of the state, they must be submitted to by individuals for the good of the public.

It might be noted, continued the court, that after making its order the trial court announced that when the petitioner was cured he would reduce the bond set by the justice of the peace in the criminal proceeding probably to one hundred dollars or some other nominal sum.

Apparently, while awaiting the decision of the Supreme Court in the appeal from the decision of the circuit court, the petitioner applied for a release on an appearance bond pending the disposition of the appeal. The Supreme Court denied that application without an opinion. It now undertook to state its reasons for that denial. Our view, said the court, was that the petitioner was being held under a quarantine order, which is not a criminal proceeding and hence is not bailable. As soon as the petitioner is cured and released from quarantine, the court below has very properly announced that she will be promptly released from custody on a nominal bail bond to appear and answer the minor criminal charge for which she was arrested. The constitution of this state guarantees the right to bail in criminal causes, with one exception, namely, in capital offenses where the proof is evident or the presumption great. The court then adverted to the fact that the object of bail in civil cases is either directly or indirectly to secure the payment of a debt or other civil duty. But those reasons calling for bail in criminal and civil causes do not apply to an instance in which a person is detained on a quarantine order. To grant release on bail to persons isolated and detained on a quarantine order because they have a contagious disease which makes them dangerous to others, or to the public in general, would render quarantine laws and regulations nugatory and of no avail.

For the reasons stated, the order of the trial court dismissing the petition for a writ of habeas corpus was affirmed.—*Varholy v. Sweat, Sheriff, 15 So. (2d) 267 (Fla., 1943).*

Society Proceedings

COMING MEETINGS

Annual Congress on Industrial Health, Chicago, February 15-16. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, February 14-15. Dr. Victor Johnson, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Orthopaedic Surgeons, Chicago, January 22-26. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Secretary.

Annual Forum on Allergy, St. Louis, Jan. 22-23. Dr. Jonathan Forman, 394 East Town St., Columbus, Ohio.

Clinical Orthopaedic Society, Chicago, January 22-26. Dr. Myron O. Henry, 825 Nicollet Ave., Minneapolis, Secretary.

Society of Surgeons of New Jersey, Atlantic City, January 29. Dr. Walter B. Mount, 21 Plymouth St., Montclair, N. J., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1934 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

13:505-568 (Oct.) 1943

Cutaneous Anthrax: Pathologic Study with Clinical Correlation. R. J. Lebowich, B. G. McKillip and Jane R. Conboy.—p. 505.
Monocytic (Histiocytic) Leukemia in Relation to Previously Existing Sarcoma of Skin: Case Report. B. Gueft and P. D. Rosahn.—p. 516.
Medicolegal Necropsy. C. A. Hellwig, B. C. Russum and R. W. Kerr.—p. 527.

American Journal of Orthopsychiatry, New York

13:571-760 (Oct.) 1943. **Partial Index**

Peace Aims. F. Alexander.—p. 571.
Can We Build a Satisfactory Postwar World? G. Murphy.—p. 581.
Objectives of Military Psychiatry. R. P. Kemble.—p. 626.
New Approach to Multiple Personalities. P. L. Harriman.—p. 638.

American Journal of Surgery, New York

62:145-292 (Nov.) 1943

*Pelvioscopic Method of Uterine Suspension. W. B. Harrell.—p. 149.
March Fracture or Insufficiency Fracture. S. H. Nickerson.—p. 154.
Treatment of Traumatic Bursitis by Internal Paracentesis. E. Burgess.—p. 165.
Simple Drainage of Intrathoracic Suppurations: Use of Endocutaneous (Eloesser) Flap.—p. 169.
*Effect of Orchiectomy and Stilbestrol in Carcinoma of Prostate. C. C. Herger and H. R. Sauer.—p. 185.
Surgical Problems in Tropics. L. K. Stalker.—p. 201.
Metal Shelf for Hip Dislocation. R. Sutherland and M. J. Rowe Jr.—p. 206.
Omental Response: Observations on 160 Consecutive Autopsied Cases. R. E. Rothenberg and P. Rosenblatt.—p. 211.
Rhinoplasty and Its Relation to Rhinology. G. D. Wolf.—p. 216.
*Regional Enteritis: Case Reports. L. S. Fallis.—p. 225.
Refrigeration Anesthesia of Extremities: Statistical Study. S. T. Glasser and W. L. Mersheimer.—p. 231.
Absorption Rates of Sulfanilamide: Observations Under Varying Pathologic Conditions. B. I. Golden.—p. 235.
Disappearance of Hemolytic Staphylococcus Aureus Septicemia Following Ultraviolet Blood Irradiation Therapy: Knott Technic. G. Miley—p. 241.
*Traumatic Avulsion of Skin of Penis and Scrotum. E. S. Judd Jr. and F. Z. Havens.—p. 246.

Pelvioscopic Method of Uterine Suspension.—Harrell describes a new instrument which will allow the surgeon a direct visualization of the pelvic viscera without performing a laparotomy. He also shows how the Gilliam type of uterine suspension may be performed without open abdominal incision, by use of the pelvioscope and special round ligament hook instrument. By performing this operation without open abdominal incision the patient may become ambulatory the first postoperative day and the period of hospitalization is reduced to one or two days.

Orchiectomy and Diethylstilbestrol in Carcinoma of Prostate.—During the past twelve months Herger and Sauer have carried out castration or diethylstilbestrol treatment or both on 82 patients with carcinoma of the prostate who were studied for a period of from three to twelve months. Sixty of the 82 patients were given diethylstilbestrol medication alone. Orchiectomy alone was carried out on 3 patients, and castration either preceded or followed by diethylstilbestrol was performed on the remaining 19 patients. Since 50 per cent of the patients receiving diethylstilbestrol exclusively responded with regression or softening of the prostate, the authors believe that estrogen administration without castration should have its place in selected cases of prostatic cancer. An indication for such treatment is present in patients (1) with operable carcinoma of the prostate who refuse radical operation, (2) with moderately advanced lesions who have little or no symptoms, (3) with comparatively low grade, malignant, well differentiated adenocarcinoma in whom progression of the lesion is slow, or (4) who refuse castration or for whom orchiectomy is contraindicated. It is necessary to carry out reexaminations at frequent intervals, and castration should be carried out as soon as there is increase in size of the prostate with progressive infiltration into the pelvis, development of obstructive symptoms, increase in the serum acid phosphatase activity and other symptoms which suggest metastatic spread of the disease. Castration should be recommended for all patients with prostatic cancer in whom metastases are demonstrable and for patients with a type of lesion which has a tendency to rapid progression. In addition, castration should be carried out on patients who do not respond favorably to diethylstilbestrol administration. The value of combined diethylstilbestrol medication and orchiectomy is undecided. Although favorable results have been accomplished in numerous cases, the authors do not believe that castration or diethylstilbestrol treatment will result in cures. However, this method yields far more favorable results than palliative irradiation. Neither castration nor diethylstilbestrol treatment can replace surgical removal of cancer of the prostate in patients in whom the prostate is still encapsulated.

Regional Enteritis.—Fallis says that among the 180,000 patients admitted to the Henry Ford Hospital during the period between 1933 and 1943 there have been 27 patients who had regional enteritis as proved by operation and an additional 5 diagnosed on the basis of history and x-ray examination but not yet operated on. The author reviews observations in these 32 cases. He gained the impression that regional enteritis is on the increase and that it is more frequent in male than in female subjects, the ratio being about 4:3. Eighty per cent of the patients were under 40 years of age. Thirteen (40.7 per cent) of the 32 patients had previous appendectomy. One patient presented a massive intestinal hemorrhage as the principal symptom. A correct preoperative diagnosis was made in only one third of the patients. Resection is the operation of choice. The surgical mortality was 6.7 per cent. The terminal ileum was involved in 90 per cent of the cases. Thirty per cent of the patients on whom resection was performed had a recurrence and required subsequent resection.

Traumatic Avulsion of Skin of Penis and Scrotum.—Judd and Havens show that traumatic avulsion of the skin of the penis and scrotum is often caused by farm machinery. The usual history is that the patient's overalls have become enmeshed in the gears of the combine thresher, and before the machinery can be stopped the clothing has engaged the pubic hair and avulsion of the skin has occurred instantly. Surgical restoration in these cases is now readily accomplished with modern methods of skin grafting, especially since the advantages of the Padgett dermatome have been proved decisively. The element of pressure on the grafted zone cannot be overemphasized. This may be obtained satisfactorily by a "doughnut dressing" cut from sponge rubber blocks and bound snugly in place with a roll of gauze. The observation was made that the catheter may not be quite as essential as it formerly was supposed. Recently patients have been able to do without the catheter early, and the consensus is that in cases observed in the future the catheter can be removed early. The point has been made that the tube acts as an extension mechanism for the penile shaft, but the proper application of the graft and the dressings may make this element superfluous. Therapeutic doses of chemotherapeutic drugs have been instrumental in overcoming sepsis of the traumatized tissue. If the patient is not seen immediately, it is well to employ sulfonamides in the preparatory period. The authors review 9 cases observed at the Mayo Clinic.

Annals of Allergy, Minneapolis

1:1-90 (July-Aug.) 1943

Army Allergy: Report on Allergy Clinics in Fourth Service Command. S. W. French and L. J. Halpin.—p. 1.
Possible Etiology of Appendicitis. L. O. Dutton.—p. 17.
Deallergization versus Hyposensitization. E. Urbach and P. M. Gottlieb.—p. 27.
Some of Factors to Be Considered in Etiology of Bronchial Asthma: Tentative Classification. E. A. Brown and P. L. Goitein.—p. 33.
Vernal Conjunctivitis (Spring or Vernal Catarrh). S. Marton.—p. 39.
Empirical Formula, Structural Formula and Molecular Weight of the Major Antigen in Crude Ragweed Pollen Extract. G. E. Rockwell.—p. 43.
Molds and Their Relation to Allergy. Committee of Allergists for the Study of the Unknown Causes of Hay Fever and Asthma.—p. 54.

Archives of Neurology and Psychiatry, Chicago

50:499-632 (Nov.) 1943

*Effect of Various Sulfonamide Compounds on Nerve Regeneration. W. S. Hammond, J. F. Nonidez and J. C. Hinsey.—p. 499.
Acute Arrest of Cerebral Circulation in Man. R. Rossen, H. Kabat and J. P. Anderson.—p. 510.
Changes in Electroencephalogram Following Metrazol Shock Therapy: Quantitative Study. J. R. Knott and J. S. Gottlieb, H. H. Leet and H. D. Hadley Jr.—p. 529.
Changes in Electroencephalogram Following Insulin Shock Therapy: Quantitative Study. J. R. Knott and J. S. Gottlieb.—p. 535.
Quantitation of Muscular Function in Cases of Poliomyelitis and Other Motor Nerve Lesions: Electrical Excitability Tests and Electromyographic and Ergographic Studies. R. S. Schwab, A. L. Watkins and Mary A. B. Brazier.—p. 538.
Cerebral Arteriovenous Oxygen Difference: I. Effect of Age and Mental Deficiency. H. E. Himwich and J. F. Fazekas.—p. 546.
Reticulum Cell Sarcoma of Brain. T. D. Kinney and R. D. Adams.—p. 552.
Atherosclerotic Myelopathy with Syrinx Formation: Differentiation from Other Types of Syringomyelia. C. Davison, S. Brock and S. P. Goodhart.—p. 565.
Diffuse Leukoencephalopathy without Sclerosis: Clinicopathologic Study of New Form with Comment on Various Types of So-Called Diffuse Sclerosis and Schilder's Disease. H. Josephy and B. W. Lichtenstein.—p. 575.
General Principles of Autonomic Innervation. O. R. Langworthy.—p. 590.

Effect of Sulfonamide Compounds on Nerve Regeneration.—Hammond and his collaborators designed experiments to determine the local effects of the sulfonamide drugs following simple nerve section, primary suture and suture delayed five days after the injury. The 58 cats used were killed at intervals of two, five, ten, fifteen and thirty days after the operation. Alternate longitudinal sections and cross sections of the nerve were stained by a modification of the Bodian silver method for nerve fibers, the hematoxylin and eosin method, Masson's trichrome technic and a silver impregnation method for argyrophilic and collagenous connective tissue. The regeneration of nerve fibers did not vary from the usual pattern in the presence of the sulfonamide compounds. Sulfanilamide, sulfathiazole, sulfapyridine and sulfadiazine do not appear to exert any chemical influence on the nerve regeneration. If these drugs are not rapidly absorbed they may offer a mechanical hindrance to the passage of regenerating fibers. The microscopic appearance of the sectioned nerve is a typical acute inflammatory reaction followed by reparative fibrosis. A typical foreign body reaction follows introduction of a sulfonamide compound into the wound except in the case of sulfanilamide, which is rapidly absorbed. The new nerve fibers are of small and medium size. Thick axons do not regenerate as such but produce a variable number of small and medium size fibers. The new fibers do not penetrate the old myelin sheath pathways but pass down beside them, presumably in a schwannian syncytium or between the sheaths of the endoneurium. A definite schwannoma was not observed. Primary suture of a nerve offers the best prognosis.

Archives of Otolaryngology, Chicago

38:413-540 (Nov.) 1943

*Trauma of Larynx. C. Jackson and C. L. Jackson.—p. 413.
Prostigmine Therapy of Atrophic Rhinitis. R. Henner and W. Busby.—p. 426.
Pathway of Tonsillar Lymphocyte. G. Kelemen.—p. 433.
Use of Diathermy in Submucous Resection. A. C. Jones.—p. 445.
Clinical Evaluation of Tenderness of Mastoid. H. Rosenwasser.—p. 447.
Quantitative Tubal Function. H. B. Perlman.—p. 453.
Voice Production and Laryngologist. W. A. C. Zerffi.—p. 466.
Anatomy of Tracheobronchial Tree from Bronchoscopic Standpoint: Study of Twenty Pairs of Lungs; Preparation of Lungs for Demonstration. E. W. Hagens.—p. 469.
Functional Anatomy of Eustachian Tube. C. S. Simkins.—p. 476.
Ludwig's Angina: Anatomic Study of Role of Lower Molar Teeth in Its Pathogenesis. K. Tschiassny.—p. 485.
Tumors of Nose and Throat. G. B. New and E. L. Foss.—p. 505.

Trauma of the Larynx.—The Jacksons present the results of clinical observations on industrial, criminal, accidental and suicidal trauma of the larynx. So important is trauma of the larynx in the treatment of injuries of the neck that such injuries might well be divided into two classes according to whether the larynx is involved or not. Tracheotomy may be necessary for emergency control of cervical hemorrhage even in the absence of dyspnea. By enabling cannular maintenance of airway it permits compression in the neck to serve in emergency control of hemorrhage. Endolaryngeal hemorrhage can be controlled by tracheotomy followed by direct laryngoscopic packing of the larynx. Tracheotomy, done early and low, is indicated in almost all cases of endolaryngeal trauma. In lacerated wounds of the neck involving the larynx the following points are important: (*a*) A cannula should not be worn in the wound more than a few hours if at all. To avoid this, low tracheotomy should be done at the earliest possible moment. (*b*) Débridement within the larynx is contraindicated. (*c*) The cervical wound should not be completely closed; a large channel down to the larynx should be packed open until perichondritis and chondral necrosis are controlled. (*d*) The laryngeal cartilage should not be stitched. (*e*) When the food passages are opened, a feeding catheter should be worn through the nose until the food passages are repaired by plastic or other methods; prevention of dehydration is even more important than feeding in these cases. (*f*) If sulfonamide compounds are to be used locally in cervical wounds with openings into the air or food passages, such openings should be momentarily closed with a pad of gauze to prevent entrance of excessive amounts of the drugs. In laryngeal fractures and crushes a core mold should be inserted immediately or within a few days to serve as an internal splint to maintain a good lumen and restore form. Usually their use can be commenced within a week or two after the occurrence of trauma. Pneumonia and edema of the lungs are rare complications. The signs on which such diagnoses have been based disappeared in most cases after bronchoscopic aspiration of obstructive secretions. Psychic trauma with vocal manifestations is curable by psychic treatment.

Canadian Journal of Public Health, Toronto

34:433-480 (Oct.) 1943

Firm Foundations First. V. R. Smith.—p. 433.
*Influenza Among Immunized and Unimmunized Populations in 1943. R. Hare, Dorothy M. Stamatis and Jocelyn Jackson, with assistance of C. E. Dolman, P. L. Rentiers, P. W. Hudson and C. R. Donovan.—p. 442.
*Influenza and Similar Respiratory Infections in Military Camp Over Period of Three Years. R. Hare, J. Hamilton and W. R. Feasby.—p. 453.
National Physical Fitness Act. J. J. Heagerty.—p. 465.
Experiment in Tuberculosis Control. J. V. Riches.—p. 470.

Influenza Among Immunized and Unimmunized Populations.—Hare and his collaborators say that groups of persons had been immunized with concentrated influenza A vaccine in various centers across the dominion of Canada from November 1942 through January 1943. The vaccine consisted of a tenfold concentrate of influenza A virus which had been grown in the allantoic fluid of the developing egg. An equal number of volunteers were given two doses of 1 cc. of saline solution to which had been added sufficient solution of formaldehyde to make the injections about as painful as those in which vaccine was injected. The volunteers were under the impression that two varieties of vaccine were being compared. All those who received the injections were asked to report any form of upper respiratory tract infection during the subsequent three months, or until the end of March. The standards adopted in the various centers varied somewhat. In Toronto and Edmonton, every case of upper respiratory tract infection, no matter how trivial, was studied. In Winnipeg and Vancouver, however, only cases of an influenzal nature were studied, those who merely had what appeared to be common colds being neglected. The studies were originally started in the hope of determining whether human beings immunized against influenza A were protected against infection with that virus. In view of the almost complete absence of influenza A in any of the centers where such immunization had been carried out, this question must remain unanswered. An epidemic of rather a mild character and somewhat atypical in symptoms did make its appearance in which serologic evidence indicated that about 23 per cent of the cases were due to influenza B. The incidence of influenza B in both immunized and control groups was approximately equal. No clinical differences between the cases diagnosed as influenza B and the remainder could be detected.

Respiratory Infections in a Military Camp.—The outbreaks studied by Hare and his associates comprise a relatively severe epidemic of the winter of 1940-41, one mild epidemic in the autumn of 1941 and three separate epidemics during the

winter of 1942-43. All occurred in Camp Borden. For the isolation of virus, the patient either gargled about 10 cc. of saline solution or had a similar quantity instilled into the nose by means of a rubber tube. Blood was taken as soon as possible after admission and again during convalescence. The titer of the neutralizing antibody of these serums was determined for influenza A and B viruses either by neutralization tests in mice or by the inhibition of agglutination of red cells. The first epidemic, that of 1940-41, was part of the widespread epidemic in which some cases were due to influenza A but with no identifiable agent responsible for the remainder. The epidemics in the succeeding year were not studied as completely as was desirable, but the wave studied was not due to influenza A or B. During 1942-43 there were three separate waves, each apparently due to something different. The first was undoubtedly not due to influenza A or B and no etiologic agent has been identified. About one fourth of the cases showed signs of lung involvement. This complication did not differ from the disease which has been reported as virus pneumonia, pneumonitis or primary atypical pneumonia of unknown origin. The second wave, in February 1943, was part of a widespread epidemic which appeared at various centers across the dominion. About 23 per cent of the cases were probably due to influenza B virus as judged by serologic tests. Actual isolation of influenza B was not achieved. The third wave was evidently due to influenza A. The first epidemic coincided with the usual outbreak of autumn colds, and a high proportion of patients suffered from what appeared to be a common cold for a day or two until the more acute symptoms set in. The symptoms which justified admission to the hospital may not have been quite typical of influenza; but as there were backache, headache and a short, sharp febrile illness in about 76 per cent of the cases it would be quibbling to describe the disease as anything but influenza. The remaining 24 per cent had the same general signs and symptoms but in addition developed signs in the lungs sufficient to justify the diagnosis of primary atypical pneumonia. There was close relationship between the patients who developed pneumonia and those who did not. It seems reasonable that the same etiologic agent was responsible for the infection in the two groups. A similar syndrome was seen in the second wave with about the same proportion of patients developing signs of lung involvement. There is little doubt that the connection between the common colds, influenza, febrile catarrh and primary atypical pneumonia, which occurred in the two waves, was due to a common etiologic agent in the waves. In the case of the first, this must still remain conjectural. But in the second wave a proportion of the patients were presumably infected with influenza B, some with A and two with both A and B, the remainder being also of unknown causation. The question arises whether all the patients were infected with the unknown agent, but some had a complicating infection with A or B viruses, whether the three agents influenza A, influenza B and the unknown agent were at work at the same time, each causing its own proportion of infections, or whether all the cases were due to influenza B but some failed to respond serologically. With the available evidence it is not possible to answer these questions.

Gastroenterology, Baltimore

1:911-994 (Oct.) 1943

*Prompt Feeding Program for Bleeding Gastric and Duodenal Ulcer: Report on 2,111 Collected Cases, Including 75 Personally Observed. E. A. Rasberry Jr. and T. G. Miller.—p. 911.
*Congenital Megacolon: Favorable End Results of Treatment by Resection. F. Whitehouse, J. A. Bargen and C. F. Dixon.—p. 922.
Gallstone Ileus: Successful Treatment with Miller-Abbott Tube. F. M. Owens Jr.—p. 938.
Review of Gastroenterologic Diagnostic Roentgenologic Literature for Year 1942. F. J. Rigos and B. R. Kirklin.—p. 942.
Malignant Argentaffinoma of Ileocecal Valve. A. Korkosz.—p. 961.
Immunizing Effect of Anti-Ulcer Factor in Normal Human Urine (Anthelone) Against Experimental Gastrojejunal (Peptic) Ulcer in Dogs. D. J. Sandweiss.—p. 965.
Relation Between Nutritional Hydration and Contents of Fasting Stomach While Fasting One Day per Week. F. Hoelzel.—p. 970.

Prompt Feeding Program for Bleeding Ulcer.—Rasberry and Miller present an analysis of 2,111 cases of grossly bleeding gastric and duodenal ulcer, including 75 personally observed, all treated with the prompt and frequent feeding program as popularized by Meulengracht. The fundamental element of this treatment is prompt and frequent feeding. The feedings usually consisted of milk products, eggs, gelatin preparations, cereals, puréed vegetables and cooked fruits administered at least six times a day. Ground meats were often added after a few days. It has been generally unnecessary to make use of alkaline medication, though it has been used in some instances. Opiates have been avoided. To overcome shock an adequate fluid intake was urged. Transfusions have been given without hesitation. There was a gross mortality of 4 per cent and a net or corrected mortality of 1.9 per cent. The authors think that, except when coincidental perforation has occurred, better results, both as to the survival of the patient and as to his comfort during the period of his illness, are obtained by this regimen than by any other form of conservative treatment or by surgical intervention.

Resection in Congenital Megacolon.—Whitehouse and his colleagues gathered 29 cases of congenital megacolon or Hirschsprung's disease from the records of the Mayo Clinic between the years 1909 and 1941. Twenty-four of the 29 patients were males; that is, the ratio of males to females was about 5:1. Twenty-seven of the 29 patients had had severe obstipation since birth or infancy. The remaining 2 patients had had intestinal symptoms for several years. Subtotal colectomy was performed in all of the 29 cases. Seven, or 24.1 per cent, of the patients died as a result of the operation. It has been stated repeatedly that patients who are less than 3 or 4 years of age withstand surgical treatment poorly. This holds true for sympathectomy as well as for subtotal colectomy. Three of the 7 patients who died were less than 3 years of age. Every effort should be made to avoid surgical treatment until these patients become older. A follow-up study on the patients who survived the operation disclosed that the results of subtotal colectomy are long lasting and that few complications occur. Subtotal colectomy is the treatment of choice in cases of segmental congenital, idiopathic megacolon, in cases in which megacolon does not respond to sympathectomy or to medical treatment, and in cases in which it is due to chronic mechanical obstruction. Subtotal colectomy also is the treatment of choice in severe megacolon when the patients are males. Unless indicated by an emergency condition, subtotal colectomy is contraindicated in megacolon when the patients are infants.

Georgia Medical Association Journal, Atlanta

32:317-354 (Oct.) 1943

Virus Pneumonia. C. B. Fulghum.—p. 317.
Electrocardiogram: Its Indications and Limitations. R. B. Logue.—p. 321.
Weak Points in Medical Approach to Nutrition Problem. E. R. Watson.—p. 325.
Foods in Wartime. Susan Mathews.—p. 329.
Diverticula of Esophagus: Report of Case and Comment on New Surgical Approach. J. W. Turner.—p. 334.
Priority of Murray-Nelson-Hulsman Original Method for Avoiding Perforation in Submucous Resection. R. M. Nelson.—p. 338.
Tetanus Following Intestinal Surgery. G. W. Fuller and A. H. Letton.——p. 339.

Journal of Nervous and Mental Disease, New York

98:343-456 (Oct.) 1943

Physiology of Spinal Cord: II. Influence of Chordotomy on Existing Motor Disturbances. O. R. Hyndman.—p. 343.
Neuropsychiatric Perspectives. E. A. Strecker.—p. 359.
Physiology of Schizophrenic Thinking. G. Bychowski.—p. 368.
Torquato Tasso, Eugene Delacroix, Johann Wolfgang von Goethe: Psychiatric Study. H. Stanka.—p. 387.
Spontaneous Reactions to Metrazol Therapy. L. Kerschbaumer.—p. 390.
Attitude of Psychoneurotic Toward Scientific Contraceptive Advice: Further Study. J. H. Friedman.—p. 396.

Maine Medical Association Journal, Portland

34:189-208 (Oct.) 1943

Cerebellar Astrocytoma, with Report of Case in 12 Year Old Girl. T. D. Pratt and A. H. McQuillan.—p. 189.

34:209-230 (Nov.) 1943

Discussion and Case Report on Myasthenia Gravis. G. Geyerhahn.—p. 209.
Pfeiffer Bacillus Meningitis: Review of Cases Treated by Chemotherapy; Report of Case Treated with Sulfadiazine and Immune Serum with Recovery. C. W. Steele.—p. 212.

New Jersey Medical Society Journal, Trenton

40:379-412 (Oct.) 1943

*Observation on 1,200 Cases of Obesity Treated with Amphetamine (Benzedrine) Sulfate. S. W. Kalb.—p. 385.
Trend of Industrial Medical Practice. E. W. Probst.—p. 388.
Study of Case Histories of Fifteen Soldiers Admitted to Mental Hospital After Discharge from United States Army. L. Reznikoff.—p. 391.
Dr. William McKissack, New Jersey Army Physician with General Washington. Mildred V. Naylor.—p. 396.

Obesity Treated with Amphetamine Sulfate.—Kalb reports that 1,200 patients ranging in age from 12 to 63 years who were 10 to 124 per cent overweight were given amphetamine (benzedrine) sulfate. One hundred obese persons who did not receive medication served as a control group. Ten mg. of the drug was given daily; this was gradually increased to 20 or 30 mg. a day. In addition, a high protein diet ranging from 800 to 1,500 calories was prescribed. The average decrease in body weight was 26.4 pounds over a period of 11.2 weeks. The least amount of amphetamine sulfate used by any 1 patient was 70 mg. and the greatest quantity ingested was 5,030 mg. The average weekly loss in weight per patient was 2.4 pounds. In the control group the average period on the diet was 5.8 weeks, with an average weight loss of 2.2 pounds a week. Fifty patients who had been reduced to normal were placed on a maintenance diet ranging from 1,800 to 2,200 calories for a period of four weeks. Each patient received 20 mg. of amphetamine sulfate daily to determine if weight loss would result from the use of this drug alone. These patients failed to show any weight loss; in fact, each gained from 1 to 8 pounds (0.5 to 3.6 Kg.). Amphetamine sulfate has little or no effect on the blood pressure of obese patients with normal or elevated arterial tension. The pulse rate showed an increase in 26 per cent and a decrease in 8 per cent of the patients. The appetite was inhibited in approximately 40 per cent of the obese patients receiving amphetamine sulfate. The basal metabolic rate is not influenced by amphetamine sulfate in the doses given. The ingestion of amphetamine sulfate as such does not cause loss in body weight.

Ohio State Medical Journal, Columbus

39:985-1088 (Nov.) 1943

Neglected Aspects of Office Gynecology. L. H. Biskind.—p. 1001.
French Method of Reducing Subluxation of Shoulder. K. Hale.—p. 1006.
Removal of Glass Drinking Tube from Abdominal Cavity: Case Report. A. H. Kanter.—p. 1008.
Necrobiosis Lipoidica Diabeticorum. L. C. Goldberg.—p. 1009.
Relapsing Fever in Korea. A. I. Ludlow.—p. 1011.
Pseudocysts of Pancreas: Report of 3 Cases. R. G. Stoll.—p. 1014.
Necropsy Incidence of Carcinoma of Lung. E. K. Johnson and H. L. Reinhart.—p. 1017.
Importance of Arteriovenous Anastomoses: Renal Circulation After Compression of Renal Artery According to Method of Goldblatt; Study of Influence of Renal Venous Run-Off on Experimental Hypertension. F. P. Corrigan and I. Pines.—p. 1019.
X-Ray Therapy of Benign Uterine Bleeding and Fibromyoma. S. J. Tamarkin.—p. 1023.
Postpartum Pulmonary Embolism: Problem of Femoral Vein Ligation as Prophylactic Measure. L. W. Whiting.—p. 1027.
Localized Outbreak of Asiatic Cholera in 1834. S. R. Williams.—p. 1029.

Physiological Reviews, Baltimore

23:305-380 (Oct.) 1943

Selenium Poisoning. A. L. Moxon and M. Rhian.—p. 305.
Biochemical Problems of Chemo-Autotrophic Bacteria. C. B. van Niel.—p. 338.
Interrelations Between Thyroid Function and Vitamin Metabolism. V. A. Drill.—p. 355.

Public Health Reports, Washington, D. C.

58:1573-1604 (Oct. 22) 1943

The Physically Handicapped. B. D. Karpinos.—p. 1573.

58:1605-1640 (Oct. 29) 1943

Surveys of Milk Laboratories in War Areas in United States: I. Practices Observed in Making Agar Plate Counts. L. A. Black.—p. 1605.
*An Outbreak of Dermatitis from Hair Lacquer. L. Schwartz.—p. 1623.

Dermatitis from Hair Lacquer.—According to Schwartz, hair lacquers, which are used to keep stray locks in place, first were made of shellac either dissolved in alcohol or treated with borax or with triethanolamine. Dermatitis only rarely occurred following the use of hair lacquer made from real shellac, but when the supply of shellac began to diminish on account of the war substitutes were used. Manila gum was the first substitute, but the supply of this also failed and cosmetic houses appealed to their shellac jobbers for a substitute. One jobber sold as a substitute for shellac a synthetic resin which had been used as a shellac substitute for wood varnish. The other chemical jobber when called on for a shellac substitute also furnished a synthetic resin. The composition of the resins was ascertained by questioning the two chemical concerns, each of which made one of them. This revealed that both resins, although obtained from widely different sources, were combinations of rosin and maleic anhydride. They differed only in that one manufacturer used in addition ethylene glycol, and that the other one, instead of actually using maleic anhydride to boil with the rosin, used fumaric acid, which is isomeric with maleic anhydride and changes rapidly to maleic anhydride on boiling. Undoubtedly the synthetic resins consisting of a combination of the maleic anhydride and rosin were the actual cause of the dermatitis, although the alkalinity of one of the products (p_H 9) and the strong acidity of the other (p_H 3) aided the penetration of the resin into the skin.

Quarterly J. Studies on Alcohol, New Haven, Conn.

4:163-352 (Sept.) 1943. **Partial Index**

Glucose Tolerance of Alcohol Addicts: Study of 303 Cases. W. L. Voegtlin, P. O'Hollaren and Nelle O'Hollaren.—p. 163.
Rate of Disappearance of Alcohol from Blood in Obstructive Jaundice. G. Lolli and Miriam Rubin.—p. 183.
First (1943) Summer Session of School of Alcohol Studies, Yale University. E. M. Jellinek.—p. 187.
Functions of Alcohol in Primitive Societies: Cross-Cultural Study. D. Horton.—p. 199.

Southwestern Medicine, Phoenix, Ariz.

27:211-236 (Sept.) 1943

Recent Advances in Ophthalmology of Interest to General Practitioner. P. H. Case.—p. 213.
B. H. Vaccine in Allergy (A Preliminary Report). E. F. Boyd.—p. 217.
Pylorospasm (Result of Brain Injury?). J. B. Walton.—p. 222.

Union Médicale du Canada, Montreal

72:1243-1362 (Nov.) 1943

*Indications for Anesthetic Infiltrations of Sympathetic Ganglions in Sequels of Traumatisms. F. Bratek-Kozlowski.—p. 1245.
Experimental Studies on Surgical Treatment of Coronaritis. M. Fauteux.—p. 1260.
Sterility: General Etiologic Factors. G. Hebert.—p. 1263.
Problem of Sterility from Point of View of Urology. P. Bourgeois.—p. 1267.
*Control of Osseous Metastases in Cancer of Breast. J. Bouchard.—p. 1276.
Organization of Campaign Against Cancer in Province of Ontario. P. Brodeur.—p. 1284.
Regional Ileitis. A. Pettigrew.—p. 1288.
Pointed Foreign Bodies in Digestive Tube. E. Dufresne.—p. 1291.
Penetrating Wounds of Abdomen by Impalement of Perineum. P. A. Poliquin.—p. 1294.
Epithelioma of Limbic Conjunctiva Cured by Radium. E. P. Grenier.—p. 1298.

Anesthetic Infiltration of Sympathetic in Sequels of Traumas.—According to Bratek-Kozlowski, remarkable results have been obtained during this war in traumas of the extremities and nerves with anesthetic infiltrations of the sympathetic nerves. He reviews observations in 11 cases of injuries of the nerves and describes several interesting case histories. Explaining the technic of sympathetic infiltration, he first takes up that of the stellate ganglion, elucidating its anatomy on the basis of a diagram. He mentions numerous conditions for which infiltration of this ganglion has been employed and shows that nerve block by alcoholization is inadvisable. He uses from 10 to 15 cc. of a 1 per cent solution of procaine hydrochloride, as was recommended by Leriche and Fontaine. After evaluating the various approaches to the stellate ganglion he describes the lumbar sympathetic and the indications for and technic of the infiltration of this chain. He shows that infiltration of the sympathetic has a surprising effect in the sequels of injuries of

the extremities, particularly on the stiffness of the joints with edema, on the vasomotor or trophic disturbances and in certian painful sequels such as causalgia, cyanosis, sweating and the syndrome of Volkmann. It calms the pain instantaneously. Several minutes after the infiltration the voluntary mobility returns in the region of the paralyzed muscles; the arterial pressure increases and the oscillatory index increases. Sprain is in the majority of cases a vasomotor disorder of the nature of a reflex. From 10 to 15 per cent of cases are grave with important destruction. That is why the infiltration of the ligaments or of the lumbar sympathetic gives such excellent results.

Osseous Metastases of Breast Cancer.—According to Bouchard, 180 cases of breast cancer have been treated at Royal Victoria Hospital since 1938. Of this number 37 showed roentgenologic signs of bone metastases, and death has occurred in 24 of these to date. These 24 cases are analyzed by the author. He found that 87.5 per cent of these metastases appeared in patients classed in groups 2 and 3 at the time the primary tumor was treated. The factor of age seemed to play no particular part either in the frequency or in the degree of the malignancy of these osseous metastases. The interval between the appearance of the primary tumor and the bony metastases was on the average three or four years, except in the patients between 20 and 30 years, in whom they seemed to appear in approximately half that time. The longer the interval, the longer is the survival. Osseous as well as pulmonary metastases must be systematically searched for, clinically as well as roentgenologically, before the patient is operated on. This search must be renewed in the course of the periodic examination, especially if the patient complains of so-called neuralgic or rheumatic pains. The search must be most thorough in the thorax, pelvis and lumbosacral part of the vertebral column. At least 75 per cent of the osseous lesions present an osteolytic aspect. An osteoblastic lesion indicates a slow growing metastasis. The prognosis must take into account other than skeletal metastases. Associated pleuropulmonary metastases make the prognosis much more unfavorable. Around 66 per cent of cases show subjective amelioration, while 26 per cent show objective improvement in response to palliative roentgen therapy. The patients with type 3 lesion should not be operated on; their primary and metastatic lesions should be irradiated. It is important to avoid forceful palpation of breast tumors and of their regional metastases, because such manipulations unfortunately are often the cause of dissemination of neoplastic cells.

War Medicine, Chicago

4:363-458 (Oct.) 1943

Studies on Commercial Air Line Pilots. M. Clinton Jr. and G. W. Thorn.—p. 363.
Value of Electroencephalogram in Prognosis of Minor Head Injuries: Preliminary Report. H. I. Harris, C. L. Wittson and W. A. Hunt. —p. 374.
Nostalgia and Its Military Implications. D. J. Flicker and P. Weiss. —p. 380.
Military Aspects of Sunburn. H. F. Blum.—p. 388.
*Treatment of Bacillary Dysentery Carriers. R. J. Hoagland, F. H. Harris and R. B. Raile.—p. 400.
*Application of Electroencephalography in Navy in Wartime. R. S. Schwab.—p. 404.
Errors in Mass Blood Grouping and Methods of Minimizing Them. E. L. DeGowin.—p. 410.
Rupture of Jejunum: Parachute Injury. C. A. Tinsman and D. W. Barrow.—p. 415.
Protective Action of Sulfanilamide Against Hepatic Damage from Chloroform Inhalation. J. C. Forbes and E. I. Evans.—p. 418.
Hypertension in Young Negroes. L. L. Orenstein.—p. 422.
Pentothal Sodium: Survey of Its Field of Usefulness in Military Hospital. A. M. Betcher.—p. 425.

Treatment of Bacillary Dysentery Carriers.—According to Hoagland and his collaborators the prevalence of the bacillary dysentery carrier state has been underestimated because the culture mediums formerly used were relatively inefficient and dysentery bacilli are often only intermittently demonstrable in feces specimens. This has resulted in the discharge of convalescent carriers from hospitals. An accurate evaluation of the efficacy of a drug in curing the bacillary dysentery carrier state can be established only if the newer, more efficient culture mediums are used and if many feces cultures are obtained over as long a period as possible. In their own studies of patients who had had bacillary dysentery and of their contacts the authors found 45 carriers (12 convalescent and 32 chronic carriers) of Shigella paradysenteriae. A history of diarrhea was obtainable from 39 patients. None of the men had symptoms when admitted. Sulfaguanidine was given to 30 carriers and succinylsulfathiazole to 15. The daily dose of 20 Gm., divided into four doses given between 8 a. m. and 8 p. m., was given for six days. Routinely during treatment two leukocyte counts and hemoglobin determinations, two urinalyses and one determination of the sulfonamide compound in the blood were performed. The level in the blood was determined after three or four days of treatment. Bacteriologic examinations of feces were performed before treatment was begun and were resumed four days after cessation of treatment. Both "SS" agar and desoxycholate-citrate agar (including 5 mg. of paraaminobenzoic acid in each hundred cubic centimeters) were used for feces cultures. Material for culture was obtained from feces or from rectal swabs. Dysentery bacilli disappeared from the feces of every patient. A total of 503 feces cultures were examined. No significant toxic reactions attended the use of either drug, but the patient receiving succinylsulfathiazole experienced minor annoyances. The criterion of cure was a minimum of nine consecutive negative reports of feces cultures made after cessation of treatment.

Electroencephalography in the Navy.—According to Schwab, electroencephalography has three applications: The first is in the examination of applicants for naval service. Since electroencephalography takes forty-five minutes and requires special equipment, it cannot be done on all applicants. Only those who give a history of fainting or of recent head injury are referred for such examination. Candidates who have vague neurologic complaints, who sleep walk, and the like, may be referred. A normal record makes it possible to accept an applicant in spite of a history of an occasional syncope, whereas definitely abnormal waves suggest the advisability of rejection. The second application is in men actually in the naval service who have fainted or who have "spells." It aids in building up an accurate diagnosis of epilepsy. The third use is that of helping to fix the extent of intracranial damage to personnel who have suffered head injuries. The electroencephalogram is useful in helping the physician to determine when these men can be sent back to duty. Ninety per cent of the naval personnel with clinical epilepsy had abnormal electroencephalograms. Subjects with isolated syncopes who were clinically not epileptic usually showed normal records. In cases of mild head injury a normal record was the rule, and in cases of severe injury an abnormal record persisted long after the clinical signs had cleared up. The usefulness of electroencephalography in the diagnosis of, or in the elimination of a suspicion of, an epileptic tendency seems to have been thoroughly proved. Nineteen of 20 patients who had chronic seasickness showed normal electroencephalographic records. This method of examination is in no way a short cut and does not eliminate the necessity of a careful history and neurologic study.

Yale Journal of Biology and Medicine, New Haven

16:1-104 (Oct.) 1943

Enzymes as Factors in Resistance to Tuberculosis: II. Inhibition of Enzyme Activity by Fatty Acids. B. Gerstl and R. Tennant.—p. 1.
Types of Hemolytic Streptococci in New Haven. P. L. Boisvert and Loraine M. Kerr.—p. 9.
Embryology of Human Hip Joint. L. M. Strayer Jr.—p. 13.
Synovioma Involving Knee Joint: Case Report. M. S. Eveleth and P. S. Brezina.—p. 27.
Lens Induction in Salamander (Amblystoma Punctatum) with Special Reference to Conditions in Experimentally Produced Cyclopia. L. S. Stone and F. L. Dinnean.—p. 31.
Effect of Estrogenic Hormones on Bacterial Content of Uterus. L. Weinstein, W. U. Gardner and E. Allen.—p. 43.
Development by Ducks of Natural Neutralizing Antibodies for Duck Variant of Rous Sarcoma Virus. J. W. King and F. Duran-Reynals. —p. 53.
Color Blindness in Eleven Thousand Museum Visitors. W. R. Miles. —p. 59.
Psychiatric Aspects of Child Bearing. L. H. Cohen.—p. 77.
Soap Lake: Spa for Thromboangiitis Obliterans. K. W. Thompson. —p. 93.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:473-502 (Oct. 16) 1943

Peptic Ulcer and Dyspepsia in Army. H. Tidy.—p. 473.
Levels of Vitamin A and C Nutrition in Glossop School Children and Effect of Deficiencies on Their Physical Condition (preliminary communication). G. Kohn, E. H. M. Milligan and J. F. Wilkinson.—p. 477.
Age Incidence and Prognosis of Epilepsy. F. J. Nattrass.—p. 481.
Scope of Prevention in Ophthalmology. Ida Mann.—p. 482.
Rise in Potassium Concentration in Blood Stream Following Ischemia of Muscle Masses. R. E. Rewell.—p. 483.

2:503-534 (Oct. 23) 1943

Studies in Vitamin B Deficiency, with Special Reference to Mental and Oral Manifestations. A. G. Clarke and F. Prescott.—p. 503.
Endemic Typhus Fever in Diego Suarez Madagascar. C. G. Baker, G. T. L. Archer and G. B. Mitchell-Heggs.—p. 506.
Two Cases of Anuria Due to Sulfapyridine Calculi Successfully Treated by Ureteric Catheterization. H. Burt-White and A. G. Johnson.—p. 508.
Immobilization and Transportation of Fractured Femur in War. R. W. Power.—p. 509.
*Local Chemotherapy in Chronic (Nonrheumatoid) Rheumatism. G. L. Scott.—p. 510.
Congenital Dilatation of Pulmonary Artery: Case. H. L. Heimann and M. M. Posel.—p. 512.

Local Chemotherapy in Rheumatism.—Scott thinks that previous workers have failed with local therapy for rheumatism because in fibrositis their dose was far too small but in the treatment of joints much too large. In the former 20 cc. rising to 50 or 60 cc. is usually well tolerated, whereas with joints 0.1 cc. to 0.2 cc. must not be exceeded. The author uses a 10 per cent solution of benzyl salicylate in oil. He observed that the rules of vaccine administration govern the weekly spacing, rising doses, negative phase and improving tolerance. The results obtained in a series of 96 consecutive and fully corroborated cases are assessed; 12 of these are briefly described. In 76 the results were good, in 14 fair and in 6 negative. The claim to innovation rests on matters of dosage and technic, the past neglect of which has obscured the value of local chemotherapy in chronic rheumatism.

Medical Journal of Australia, Sydney

2:181-200 (Sept. 4) 1943

Low Back Pain. J. H. Young.—p. 181.
War Wounds in Libyan Desert. J. Devine.—p. 187.
*Sulfaguanidine Treatment of Shiga Dysentery in New Guinea. J. J. Gard.—p. 188.

Sulfaguanidine in Shiga Dysentery.—Gard describes the results of treatment in 25 cases of bacillary dysentery due to Bacterium shigae in New Guinea. Although many patients with dysentery were admitted to the hospital during the campaign, Shiga infections were not observed until the closing stages. Since this type of dysentery is common in Japan, it is possible that the enemy was the source of infection. The Shiga dysentery encountered was on the average more severe than infections caused by Bacterium flexneri or the Boyd variety. It is not, however, safe to predict the type of infecting organism from the symptoms. In the treatment an initial dose of 2 or 4 drachms (7.5 or 15 cc.) of sodium sulfate solution was given. This was followed in two hours by 7 Gm. (14 tablets) of sulfaguanidine; then 3.5 Gm. (7 tablets) was given every four hours. Five doses were given each day until the number of stools in twenty-four hours was five or less, when the dose was reduced to 3.5 Gm. three times a day until the number of stools was normal for two or three days. In severe cases with much dehydration and exhaustion the initial dose of saline solution was dispensed with and 7 Gm. of sulfaguanidine was given immediately; this dose was followed by 3.5 Gm. given every four hours. One fourth of a grain (0.016 Gm.) of morphine and 1 one-hundredth of a grain (0.00065 Gm.) of atropine were given in all cases associated with abdominal pain. Fluids were given in the form of water, cordials, fruit drinks and barley water (from 4 to 6 pints [demiliters] a day). The patients were not starved. The average period during which sulfaguanidine was administered was 13.5 days. Specific Shiga antitoxic serum was not used, nor was it required. No toxic effects were observed which could be attributed to sulfaguanidine, in spite of the large doses employed.

Ophthalmologia Ibero Americana, Buenos Aires

5:1-94 (No. 1) 1943. **Partial Index**

*Therapy of Optic Neuritis with Nicotinic Acid. S. Barrenechea, R. Contardo, J. Arentsen and A. Jasmén.—p. 7.

Therapy of Optic Neuritis with Nicotinic Acid.—Barrenechea and his collaborators employed nicotinic acid in 5 cases of optic neuritis. The disease was retrobulbar in 4 cases. It was of alcoholic origin in 2 cases, due to focal infection in 2 cases and secondary to mumps in 1 case. The drug was administered by mouth in doses of 50 mg. each six times a day up to a daily total dose of 300 mg. for ten consecutive days. In the course of the first twenty-four or forty-eight hours central vision and visual field improved, the central scotomas disappeared and the subjective symptoms stopped. The author believes that optic neuritis whether retrobulbar or not is due to local avitaminosis which results from the increased use of the vitamins, especially nicotinic acid, by the body owing either to local or general infection or to increased destruction of vitamins by bacterial toxins. Because of the fact that the good results of nicotinic acid therapy are not permanent for as long as focal infection remains, it is advisable to carry on the proper examinations of the patient in the course of nicotinic acid therapy in order to control properly the infection after administration of nicotinic acid.

Rev. Argent.-Norteam. de Cienc. Méd., Buenos Aires

1:285-412 (July) 1943. **Partial Index**

Transthoracic Injection of Neoarsphenamine and Sulfonamides in Pulmonary Suppurations. M. R. Castex, E. L. Capdehourat and A. Martínez Marchetti.—p. 285.
Modern Treatment of Allergy. E. Urbach.—p. 293.
*Neurohepatic Degeneration. T. Fracassi.—p. 310.
Present Status of Endocrine Therapy in Gynecology. S. H. Geist and U. J. Salmon.—p. 321.
Treatment of Acute and Chronic Traumatic Temperomandibular Arthritis. L. W. Schultz and W. Shriner.—p. 350.
Mesenteric Cysts. P. L. Mirizzi, A. P. Cinelli and L. Ferraris.—p. 373.

Neurohepatic Degeneration.—Fracassi shows that, contrary to Wilson's and von Economo's belief, the degenerative process in hepatolenticular degeneration is not limited to the lenticular nuclei and the putamen but extends to the cerebral cortex, the white substance and the gray nuclei. He therefore thinks that neurohepatic degeneration would be a better term and includes under it not only Wilson's disease and the pseudosclerosis of Westphal and Strümpell but all cerebral degenerative nervous alterations caused by degenerative hepatic lesions. A case is described which could be considered Wilson's disease but which was really atrophic cirrhosis of Laënnec, probably due to a gastrointestinal disorder, since alcoholism or syphilis was absent. The patient showed neurologic manifestations ten years after the first symptoms of hepatic cirrhosis. The first neurologic manifestation was mild paralysis of the hands and legs. Later, speech became slow and hesitant and tremor of the hands developed. Clinical examination revealed an extrapyramidal syndrome with parkinsonian rigidity of the face and hand tremor, a moderate muscular rigidity, and dysarthria and tremor of the lips and tongue with difficulty in swallowing. There were also signs of a pyramidal syndrome: pronounced decrease in the strength of limbs, exaggerated tendinous reflexes, bilateral clonus of the foot and positive Babinski's sign in the left one. The patient also presented symptoms of cortical excitation in the form of epileptiform fits. He died of a pneumonia, and the necropsy showed atrophic cirrhosis of the liver with fibrous perihepatitis and interstitial splenitis as well as varices of the esophagus. There were atrophy of the cerebral cortex, laminar softening, atrophy of the striatum nuclei with softening and cystic dilatation of the perivascular spaces and areas of softening in the optic layer. Glial elements were abundant in the cortex and in the striatum nuclei. There were areas of circumscribed and diffuse denucleinization in the frontoparietal white substance.

Book Notices

The Principles and Practice of Industrial Medicine. Edited by Fred J. Wampler, M.D., Professor, Preventive and Industrial Medicine, Medical College of Virginia, Richmond. Cloth. Price, $6. Pp. 579, with illustrations. Baltimore: William Wood & Company, 1943.

The impressive collection of thirty-three contributed chapters by authorities in the field of industrial health is in effect a genuine testimonial to the expanding scope and importance of the subject. Indeed, the statement is made that industrial medicine is as broad as medical practice and that no one individual can fully comprehend, let alone supply, the entire demands which industry as a whole places on medicine and hygiene. This book does supply the answers to many gaps in professional knowledge—gaps which the editor very pointedly attributes to failure of medical educators to recognize a most significant and valuable element in the distribution of highly necessary medical service. Excellent information is presented on these subjects, which all too often fall outside the customary range of medical interest and experience but about which physicians must be prepared to answer—accident occurrence and prevention, environmental medicine, illumination, fatigue, toxicology, workmen's compensation and rehabilitation. All of these important elements to a real understanding of industrial medicine are included, and the professional standing of the contributors is excellent evidence of dependable treatment. There are in addition chapters of major medical and surgical interest which will be equally revealing to nonprofessional readers.

A Study of Absenteeism Among Women. By S. Wyatt, R. Marriott and D. E. R. Hughes. Medical Research Council, Industrial Health Research Board. Emergency Report No. 4. Paper. Price, 2d. Pp. 12. London: His Majesty's Stationery Office, 1943.

This is a report of a limited study of absenteeism among women carried out on random samples of the personnel, over a six week period, at two royal ordnance factories. It was concerned with the amount and distribution of absenteeism rather than with its causes.

The following conclusions were reached:

1. Very few women were in the habit of losing one or two shifts a week.
2. Married women lost more time than single women.
3. The larger proportion of absences were from single shifts (68.3 per cent and 60.3 per cent in factory A and B respectively) but these accounted for only 34.9 per cent and 24.8 per cent of the total number of shifts lost.
4. Absenteeism was higher on the day shift than on the evening and night shifts.
5. Younger women (up to 25 years of age) lost more time than older women.

Principles of Behavior: An Introduction to Behavior Theory. By Clark L. Hull, Professor of Psychology, Institute of Human Relations, Yale University, New Haven. Cloth. Price, $4. Pp. 422, with 84 illustrations. New York & London: D. Appleton-Century Company, Inc., 1943.

In this book the author attempts to integrate and systematize his previous work on the mathematical analysis of behavior. After an able introduction on the heuristic validity of "symbolic constructs" the author proceeds to assign specific symbols to various conative and integrative factors in behavior, such as (S) for "environmental energies," ($_sU_R$) for "unlearned receptor-effector-connections" and ($_sH_R$) for "habit." These and many other symbols are then combined into equations derived mainly from animal experimental data. In essence the formulas are designed to cover the consequences of the basic postulates that the behavior of an organism with a given neural organization depends "(1) upon the state of disequilibrium or need of the organism and (2) upon the characteristics of the environment, external and internal." Motivation is thus not neglected, but it is attributed to "hormone-like substances" and equated with various combinations of "potentiality of response evocation ($_sE_R$)," "drive stimuli (S_D)" and other such constructs. As may be seen, the author's approach, thinking and style are uncompromisingly abstract and symbolic, so that the book makes most difficult reading, even with frequent cross references to the glossary and index. However, Dr. Hull is to be commended for a courageous and searching attempt to express behavior in physiomathematical terms, and as such his work will be welcome to psychologists and biomathematicians with similar interests. Unfortunately, such pioneer work cannot yet be immediately useful to the clinician, who will probably have to wait many a generation for mathematical formulas significant for even the simplest impulses and idiosyncrasies of his friends or patients.

Health Instruction Yearbook 1943. Compiled by Oliver E. Byrd, Ed.D., Associate Professor of Hygiene and Director, Division of Health Education, School of Health, Stanford University. Foreword by Ray Lyman Wilbur, M.D., Chancellor, Stanford University. Cloth. Price, $3. Pp. 308. Stanford University, Calif.: Stanford University Press; London: Oxford University Press, 1943.

The book has twenty chapters dealing with health as a social accomplishment, health as a social problem, nutrition and health, excretion and health, exercise and body mechanics, fatigue and rest, mental health and disease, heredity and eugenics, infection and immunity, chronic and degenerative disorders, habit forming substances, the care of special organs, safety, health and physical environment, health services and facilities, family health, school health, occupational health, community health services and trends and probabilities. There is a bibliography and an author index and a subject index.

In each chapter are varying numbers of excerpts of different length from publications of many agencies and by numerous authors. A typical section is that of chapter I, which deals with health as a social accomplishment. In this chapter are excerpts on improved health conditions in the decade 1930-1940, death records for 1942, health in 1942, health of the Navy, length of life, "We Outlive Our Expectation of Life," length of life almost doubled in six decades, infrequent deaths for some diseases in 1941, the American Army is healthy, medical progress in the American Army and "People Grow Taller in America."

One might find considerable cause for differing with the editor in his selection of material to publicize. In his chapter on health as a social problem, chapter II, he gives figures on Army rejections on physical and related grounds but does not choose to publicize related material, such as that published in the Statistical Bulletin of the Metropolitan Life Insurance Company, indicating that these rejections have little relationship to the health of the nation, being technical rather than clinical.

The items are numbered from the beginning of the book straight through in one sequence, so that the first item in chapter IV is number 49, and so on. In order to ascertain the full bibliographic information on each item it is necessary to turn to the bibliography. It might have been more convenient if the identification had been placed in direct relationship to the article. With both a subject and an author index this would have made for much easier reference.

This is an interesting beginning and can be a very useful venture. Yearbooks on public health have been tried before and have unfortunately found but a small sale, perhaps because most physicians are clinically minded. The recent upsurge of interest in public health and in health education may make this a more propitious time for a book of this kind. Naturally such a book represents the selections of one editor, possibly with advice from others. His selections also represent but a small fraction of the literature appearing each year. It should be a handy reminder and refresher volume, but it cannot be anything more. By itself it must necessarily give but a sketchy idea of what has happened during the year. A question arises as to the dating of this handbook. It is entitled "Health Instruction Handbook 1943." Obviously it cannot cover 1943, since it was received for review in October and therefore must have been compiled and prepared early in 1943. Most of the bibliographic dates are in 1942, and at least some of the material refers to editions in 1941. It would seem that this dating is at least somewhat misleading.

As an introductory volume this is interesting and useful. Undoubtedly experience and criticism will enable the editor to produce better material as the years go on.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

USE OF ERGONOVINE IN LABOR

To the Editor:—In a small hospital where expert consultation is not always close at hand is it safe to give ergonovine intravenously immediately after the delivery of the head? Also is it safe to give it either intravenously or intramuscularly at any time before the placenta is delivered?

Walter G. Bernard, M.D., Detroit.

ANSWER.—Ergonovine can be administered safely at the end of the second stage of labor if facilities for its use are available. The experience of the last three years in over ten thousand deliveries has indicated that the intravenous use of ergonovine to hasten the third stage of labor has reduced the incidence of complications in this period. The loss of blood has been greatly diminished, and the incidence of postpartum hemorrhage has decreased tremendously.

The hazard of using the drug at the end of the second stage of labor is the failure of expulsion of the separated placenta into the lower uterine segment and vagina and its possible incarceration in the lower contractile portion of the uterus, so that manual removal of the placenta becomes necessary. Proper timing in the intravenous use of ergonovine will reduce this hazard greatly. For its optimum effect the drug should be given as the anterior shoulder stems under the arch of the pubis, following which there should be a delay of about thirty seconds and the posterior shoulder delivered. The separation of the placenta occurs almost instantaneously as the uterus contracts down following the expulsion of the baby. The oxytocic effect produces a powerful uterine contraction, which results in complete separation of the placenta and its extrusion into the lower uterine segment and vagina. It should be expressed from this locality promptly.

When ergonovine is given intramuscularly after delivery of the baby, about six or seven minutes is required for it to exhibit its action. By this time the placenta has separated spontaneously. The oxytocic effect is valuable in the expulsion of the separated placenta and in maintaining the uterus in good tone. There are no serious objections to the intramuscular administration of this drug after the delivery of the baby, although occasionally the incarceration of a placenta in the uterus does occur.

Reference:

Davis, M. Edward, and Boynton, Melbourne, W.: The Use of Ergonovine in the Placental Stage of Labor, *Am. J. Obst. & Gynec.* **43**:775 (May) 1942.

ONYCHOLYSIS

To the Editor:—A woman aged 42, who had always been in good health, about eighteen months ago began to have a looseness of the fingernails. There is no pain unless the loose ends are caught. The condition has been progressive, so that almost all the fingernails are loose with the exception of three. This does not affect her toenails. She has in the past been making soap and wonders if by any chance the lye could have been the cause of it. I have been unable to find anything in the textbooks or in the literature on this condition and wondered if you could give me the cause and suggest a treatment.

E. R. Sather, M.D., Alexandria, Minn.

ANSWER.—Since Oppenheim in 1909 (recounted by H. J. Templeton, Onycholysis, THE JOURNAL, Dec. 26, 1931, p. 1950) presented several cases of onycholysis in women doing laundry work, knowledge of the incidence of this nail dystrophy among industrial workers has grown. Schwartz and Tulipan (Occupational Diseases of the Skin, Philadelphia, Lea & Febiger, 1939, p. 541) list bartenders, bottle washers, cigar makers, confectioners, farm laborers, fruit workers, gardeners, milkers, vegetable cleaners and washerwomen as prone to this disorder. Soap makers are not listed; but the number of women who make their own soap is small and it seems possible that this job could precipitate an attack of onycholysis in a predisposed person. Templeton, in his report of a series of cases in bottle washers, shows that a definite predisposition exists, so that in two days of this employment the susceptible persons could be picked out. Others continued the work for long periods without such trouble.

In the case cited in the query, trauma of another kind or some constitutional factor must be suspected to have continued the trouble. Endocrine disturbances are the commonest predisposing factor, hypothyroidism and hyperthyroidism causing many cases (Fox, E. C.: Diseases of the Nails, *Arch. Dermat. & Syph.* **41**:98 [Jan.] 1940) with other endocrine disturbances seldom at fault. Fox calls attention to the intimate relation of vitamin deficiencies to endocrine disturbances, and in the discussion of this paper Becker emphasizes the effect of nervous disease, particularly neurodermatitis. Years ago Dubreuilh reported cases due to neurosis.

Even though the patient under discussion has no discernible sign of endocrine dysplasia, it may be justifiable to try a cautious course of thyroid extract. Heller (Onycholysis, *Handb. d. Haut- u. Geschlechtskr.* **13**:113, 1927) suggests binding the loose nails with strong applications of tar, ichthammol or salicylic acid. Many patients with onycholysis have recovered after a course of roentgen treatments. If other means fail, this is justifiable. One may give weekly doses of 75 to 87 roentgens of unfiltered or lightly filtered rays, avoiding all irritating local applications during the period of treatment and for three weeks after the end of the course.

DURATION OF PROTECTION FROM ANTIRABIC VACCINATION

To the Editor:—If the information is available will you please tell me how long patients are protected who have been treated with antirabic vaccine? A number of patients here have been bitten by rabid dogs, have received Pasteur treatment and are wondering what protection they would have if bitten again in the near future. Carlyle Small, M.D., Jerome, Idaho.

ANSWER.—How long antirabic vaccination protects against rabies is not known. There is lack of information on that point. From what is known about the specific protections produced by other forms of vaccination it lies near at hand to assume that the protection produced by antirabic vaccination may persist for months at least, but on account of the variability in the factors concerned there may be great variation in the effective persistence of protection. Accordingly it will be safest to advise revaccination if the patient is bitten again after even a short time. The second bite may be much more dangerous than the first.

EDEMA OF ANKLES ASSOCIATED WITH MENSTRUATION

To the Editor:—An unmarried woman with menstrual periods of three days occurring every twenty-eight days has been having considerable lower leg and ankle edema associated with her menstrual periods for the past sixteen months. There is no associated dysmenorrhea. Physical examination is essentially negative. There has been no response to eliminating the sodium radical from her diet the latter half of her menstrual cycle or from ammonium chloride or from either small doses of estrogenic substance or moderate doses of corpus luteum preceding her menstrual periods.

Robert S. Millen, M.D., New York.

ANSWER.—Salt and water retention may occur during the five days preceding menstruation, and with the onset of menstruation a diuresis may ensue. Such premenstrual edema usually responds well to a diet of low salt content and potassium citrate 10 cc. of a 20 per cent solution in fruit juice two or three times daily (total of 30 cc. daily) administered for five to six days prior to the onset of menstruation. Treatment with estrogenic substance or corpus luteum is of little value under such circumstances.

When edema is limited to the lower part of both legs as it is in the patient mentioned and when it has come on recently, one must also consider other causes which would aggravate the inherent tendency to retain salt and water at this time. The possibility of poor venous return, incompetent valves of the veins or venous obstruction deserves serious consideration, and appropriate tests for competent venous circulation should be made. It might also be helpful to measure the venous pressure in the lower extremities and compare this with the venous pressure in the arms. In most patients presenting the onset of swelling of both legs one ultimately finds either incompetent venous circulation, obstruction in the inferior vena cava or portal circulation, a mass in the pelvis, or local obstruction to circulation.

SNAKE VENOMS FOR RHEUMATISM

To the Editor:—What is your opinion of the use of moccasin venom for arthritis?

Cyril E. Bousfield, M.D., Woolwich, Maine.

ANSWER.—Venom from several species of snakes, including the cobra, pit viper, water moccasin and copperhead, have been employed by various workers in the treatment of arthritis and other rheumatic disorders. Their virtues have not been impressive to physicians, although laymen have long favored ointments of snake oil and the stings of bees in the treatment of "rheumatism." The consensus among qualified workers today is that the scientific evidence for any of these venoms in the treatment of rheumatism is lacking. None of the snake venoms have any established place in the treatment of arthritis or rheumatism.